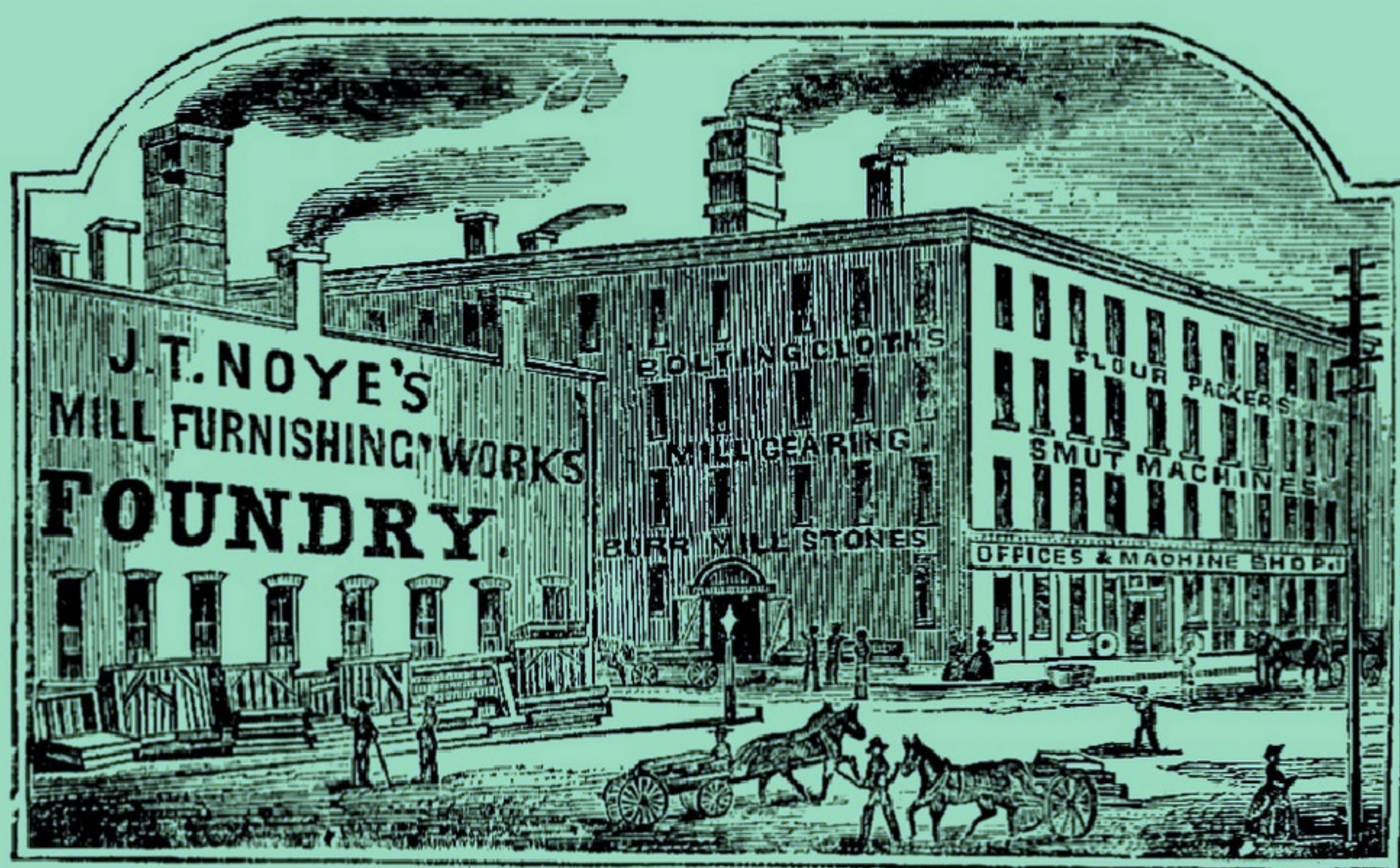


CATALOGUE
OF
GEARING AND PULLEY PATTERNS
IN
JOHN T. NOYE & SONS'
BUFFALO MILL FURNISHING
ESTABLISHMENT.



Office and Manufactory, Washington Street Bridge,
BUFFALO, N. Y.

1880.

MILL CASTINGS,
BURR MILL STONES, ROLLER MILLS,
BOLTING CLOTHS AND OTHER MILL FINDINGS.

This page blank in original.

CATALOGUE OF PATTERNS
IN
JOHN T. NOYE & SONS'
BUFFALO MILL FURNISHING
ESTABLISHMENT.

For the Year 1880.

Rules for Calculating the Speed of Gears or Pulleys.

In calculating for tooth wheels, multiply or divide (as the case may be) by the number of teeth. But in calculating for Pulleys, multiply or divide by their diameter or circumference in inches.

It is common to call the driving wheel the DRIVER, and the driven wheel the LEADER.

PROBLEM I.

The diameter or number of teeth, and number of revolutions of the DRIVER, with the diameter or number of teeth of the LEADER being given—*required*, the revolutions of the LEADER.

RULE. Multiply the diameter or number of teeth of the DRIVER by its number of revolutions, and divide by the diameter or number of teeth of the LEADER.

PROBLEM II.

The diameter and revolutions of the DRIVER being given—*required*, the diameter of a LEADER to make a given number of revolutions in the same time.

RULE. Multiply the diameter of the DRIVER by its number of revolutions, and divide the product by the required number of revolutions. The quotient will be the required diameter.

PROBLEM III.

The revolutions of DRIVER and LEADER, and the diameter of LEADER being given—*required*, the diameter of the DRIVER.

RULE. Multiply the diameter of LEADER by its number of revolutions, and divide by the number of revolutions of the DRIVER.

PROBLEM IV.

The diameter of DRIVER and LEADER, and the revolutions of LEADER being given—*required*, the number of revolutions of the DRIVER.

RULE. Multiply the diameter of LEADER by its number of revolutions, and divide by the diameter of the DRIVER.

PROBLEM V.

The number of teeth in two or more driving wheels, and the revolutions of the first driver, and the number of teeth in an equal number of LEADERS being given—*required*, the revolutions of the last LEADER in the train.

RULE. Multiply the number of teeth in each of the driving wheels successively together, and the product by their revolutions for a dividend. Then multiply the number of teeth in each of the leading wheels in like manner for a divisor. The quotient will be the number of revolutions required.

PLEASE READ CAREFULLY.

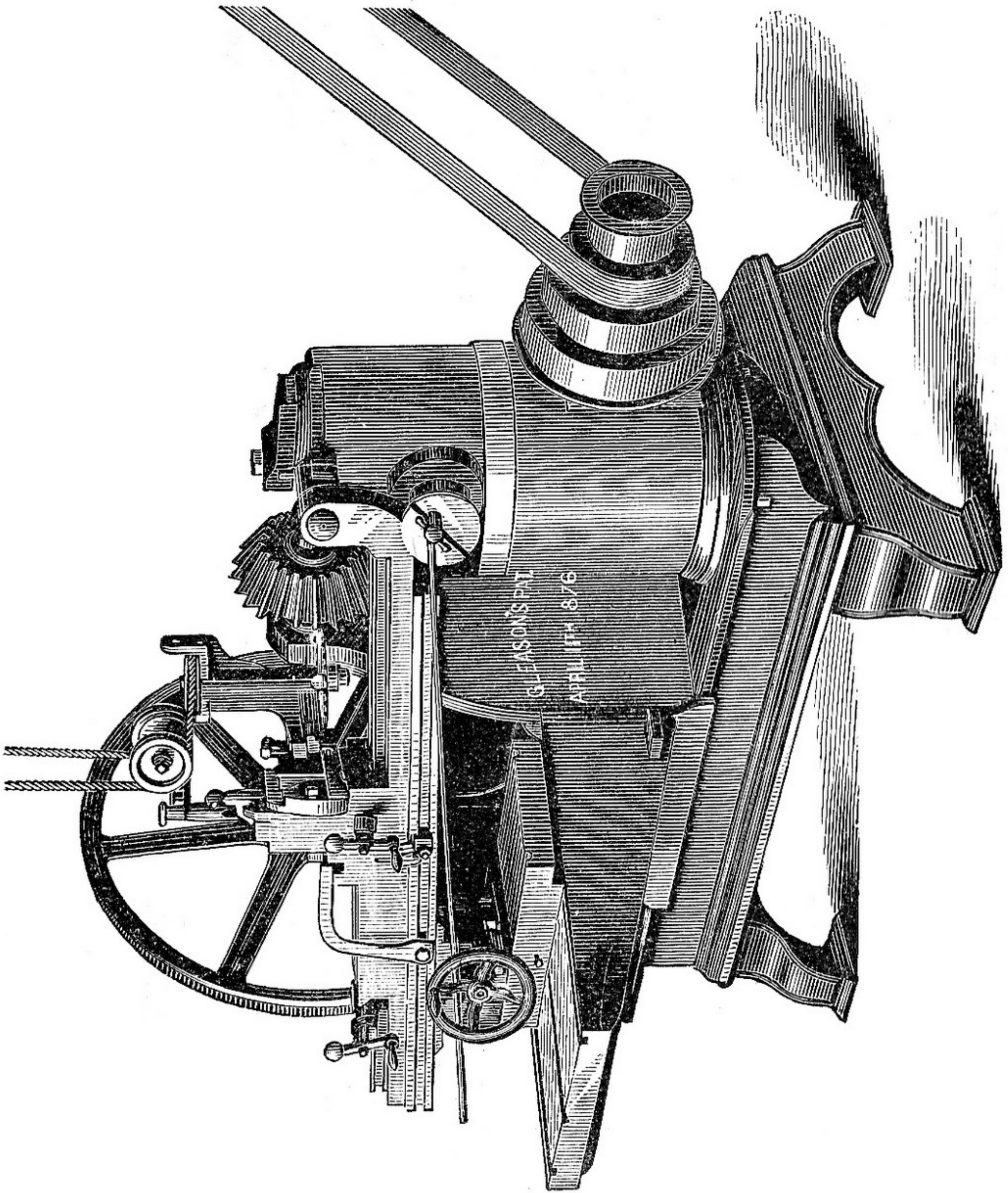
WHEN YOU ORDER WHEELS OR PULLEYS GIVE THE EXACT DIAMETER OF THE DESIRED BORE. IF YOU WANT THE CASTINGS *in the rough*, WRITE AFTER THE DESCRIPTION: "*To bore—No finish.*"

DO NOT ORDER WHEELS TO FIT CERTAIN SIZED SHAFTING, BUT MENTION THE BORE IN INCHES AND FRACTIONS OF AN INCH, AND IF POSSIBLE SEND A WIRE THE EXACT SIZE. IF THE WHEELS ARE TO FIT *cold-rolled shafting*, HOWEVER, BE SURE TO MENTION IT.

DIAMETERS OF WHEELS ARE GIVEN IN INCHES AND HUNDREDTHS OF AN INCH MEASURED AT THE PITCH LINE.

BEVEL WHEELS WORK TOGETHER ONLY AS PAIRED BY BRACES IN THE MARGIN.

GEAR PLANER.



We have recently added this tool to our shop. It is the only machine we know of in this country which will saw the teeth of bevel core wheels and plane the iron teeth of bevel pinions *accurately*. Gears worked by it can be relied upon as perfectly true.

Spur Core Wheels.

Pattern.	No. Teeth.	Face.	Pitch.	Diameter.	Depth of Eye.	Face of Rim.	Depth of Rim.	Length of Mortice.	Thickness of Mortice.	Weight.
No.	Teeth.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Lbs.
1	152	$6\frac{1}{2}$	$1\frac{3}{4}$	85^{12}	$10\frac{1}{2}$	8	$2\frac{3}{4}$	$6\frac{1}{2}$	$1\frac{5}{16}$	
2	128	6	$1\frac{3}{4}$	71^{68}	$9\frac{3}{4}$	$7\frac{1}{2}$	$2\frac{3}{4}$	6	$1\frac{5}{16}$	
3	120	$6\frac{1}{2}$	$1\frac{3}{4}$	67^{20}	$10\frac{1}{2}$	$8\frac{1}{8}$	$2\frac{3}{4}$	$6\frac{1}{2}$	$1\frac{5}{16}$	
4	104	6	$1\frac{3}{4}$	58^{24}	$9\frac{3}{4}$	$7\frac{1}{2}$	$2\frac{3}{4}$	$6\frac{1}{8}$	$\frac{3}{4}$	
5	88	6	$1\frac{3}{4}$	49^{28}	$9\frac{1}{2}$	$7\frac{1}{2}$	$2\frac{3}{4}$	6	$1\frac{5}{16}$	
6	80	6	$1\frac{3}{4}$	44^{80}	$9\frac{1}{4}$	$7\frac{1}{4}$	$2\frac{3}{4}$	6	$1\frac{5}{16}$	
7	224	7	$1\frac{3}{4}$	125^{44}	10	$8\frac{1}{2}$	$2\frac{7}{8}$	7	$1\frac{5}{16}$	
8	60	6	$1\frac{3}{4}$	33^{60}	$8\frac{1}{4}$	$7\frac{1}{4}$	$2\frac{1}{2}$	$6\frac{1}{8}$	$1\frac{5}{16}$	
9	56	6	$1\frac{3}{4}$	31^{36}	$8\frac{1}{4}$	$7\frac{1}{4}$	$2\frac{1}{2}$	$6\frac{1}{8}$	$1\frac{5}{16}$	
10	120	$6\frac{1}{4}$	2	76^{80}	$10\frac{1}{2}$	$7\frac{1}{2}$	$2\frac{1}{2}$	$6\frac{1}{4}$	$1\frac{5}{16}$	
11	112	6	$1\frac{3}{4}$	62^{72}	$9\frac{3}{4}$	$7\frac{1}{2}$	$2\frac{3}{4}$	$6\frac{1}{8}$	$1\frac{5}{16}$	
12	72	6	$1\frac{3}{4}$	40^{32}	$8\frac{3}{4}$	$7\frac{1}{4}$	$2\frac{5}{8}$	6	1	
13	40	6	$1\frac{3}{4}$	22^{40}	8	$7\frac{1}{4}$	$2\frac{1}{2}$	6	$1\frac{5}{16}$	
14	208	7	$1\frac{3}{4}$	116^{48}	10	$8\frac{1}{2}$	$2\frac{7}{8}$	7	$1\frac{5}{16}$	
15	176	$6\frac{1}{2}$	$1\frac{3}{4}$	98^{56}	$10\frac{1}{4}$	8	$2\frac{7}{8}$	$6\frac{1}{2}$	1	
16	80	4	$1\frac{1}{2}$	38^{40}	$6\frac{5}{8}$	$5\frac{3}{16}$	2	4	$\frac{5}{8}$	
17	96	6	$1\frac{3}{4}$	53^{76}	$9\frac{1}{4}$	$7\frac{3}{8}$	$2\frac{3}{4}$	6	1	
18	48	6	$1\frac{3}{4}$	26^{88}	$8\frac{3}{8}$	$7\frac{1}{4}$	$2\frac{1}{2}$	$6\frac{1}{8}$	$1\frac{5}{16}$	
19	88	$6\frac{1}{2}$	2	56^{32}	$9\frac{1}{8}$	8	3	$6\frac{1}{2}$	$1\frac{1}{16}$	
20	66	6	$1\frac{3}{4}$	36^{96}	$8\frac{1}{8}$	$7\frac{3}{16}$	$2\frac{1}{2}$	$6\frac{1}{8}$	$1\frac{5}{16}$	
21	172	$6\frac{1}{2}$	$1\frac{3}{4}$	96^{32}	$10\frac{1}{4}$	$8\frac{1}{8}$	$3\frac{1}{8}$	$6\frac{1}{2}$	$1\frac{5}{16}$	
22	60	4	$1\frac{1}{2}$	28^{80}	$6\frac{3}{8}$	$5\frac{3}{8}$	2	$3\frac{1}{16}$	$\frac{5}{16}$	
23	141	$6\frac{1}{2}$	2	90^{24}	$10\frac{5}{8}$	$8\frac{7}{8}$	$3\frac{1}{4}$	$6\frac{1}{2}$	$1\frac{1}{8}$	
24	60	6	2	38^{40}	$8\frac{3}{8}$	$7\frac{1}{4}$	$2\frac{3}{4}$	6	$1\frac{1}{8}$	
25	80	6	2	51^{20}	9	$7\frac{1}{2}$	$2\frac{3}{4}$	6	$1\frac{1}{8}$	
26	144	$6\frac{1}{2}$	$1\frac{3}{4}$	80^{64}	$9\frac{3}{4}$	$7\frac{5}{8}$	$2\frac{3}{4}$	$6\frac{1}{8}$	1	
27	36	6	$1\frac{3}{4}$	20^{16}	8	$7\frac{1}{4}$	$2\frac{1}{2}$	6	$1\frac{5}{16}$	
28	66	$8\frac{1}{2}$	3	63^{36}	$12\frac{1}{2}$	$10\frac{3}{4}$	$4\frac{1}{4}$	$8\frac{1}{2}$	$1\frac{5}{8}$	
29	44	4	$1\frac{1}{2}$	21^{12}	$6\frac{3}{8}$	$5\frac{3}{16}$	2	4	$\frac{7}{8}$	
30	48	6	2	30^{72}	$8\frac{3}{8}$	$7\frac{1}{4}$	$2\frac{3}{4}$	6	$1\frac{1}{8}$	
31	96	$6\frac{1}{2}$	2	61^{44}	$9\frac{7}{8}$	8	3	$6\frac{1}{2}$	$1\frac{1}{16}$	
32	96	4	$1\frac{1}{2}$	46^{08}	$6\frac{3}{4}$	$5\frac{3}{8}$	2	4	$\frac{7}{8}$	

Spur Core Wheels.

Pattern.	No. Teeth.	Face.	Pitch.	Diameter.	Depth of Eye	Face of Rim.	Depth of Rim	Length of Mortice.	Thickness of Mortice.	Weight.
No.	Teeth.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Lbs.
33	75	6	$1\frac{3}{4}$	42	$8\frac{3}{4}$	$7\frac{1}{4}$	$2\frac{5}{8}$	6	1	
34	42	6	$1\frac{3}{4}$	$23\frac{5}{2}$	$8\frac{1}{2}$	7	$2\frac{5}{8}$	$6\frac{1}{8}$	1	
35	90	6	$1\frac{3}{4}$	$50\frac{4}{0}$	$8\frac{3}{4}$	$7\frac{1}{2}$	$2\frac{3}{4}$	$6\frac{1}{4}$	1	
36	52	6	$1\frac{3}{4}$	$29\frac{1}{2}$	$8\frac{3}{8}$	$7\frac{1}{4}$	$2\frac{1}{2}$	6	1	
37	70	14	3	$67\frac{2}{0}$	17	$16\frac{1}{4}$	$4\frac{1}{4}$	14	$1\frac{3}{4}$	
38	38	3	$1\frac{1}{2}$	$18\frac{2}{4}$	$4\frac{1}{2}$	$4\frac{1}{4}$	2	3	$\frac{7}{8}$	
39	42	12	3	$40\frac{3}{2}$	15	$14\frac{1}{4}$	$4\frac{3}{8}$	12	$1\frac{3}{8}$	
40	48	12	3	$46\frac{0}{8}$	15	$14\frac{1}{4}$	$4\frac{3}{8}$	12	$1\frac{5}{8}$	
41	35	$3\frac{1}{2}$	$1\frac{1}{4}$	14	$4\frac{1}{2}$	4	$1\frac{5}{8}$	3	$1\frac{1}{6}$	
42	40	3	1	$12\frac{8}{0}$	4	$3\frac{1}{2}$	$1\frac{1}{2}$	$2\frac{1}{2}$	$\frac{1}{2}$	
43	31	3	1	$9\frac{9}{2}$	4	$3\frac{1}{2}$	$1\frac{1}{2}$	$2\frac{1}{2}$	$\frac{1}{2}$	

Stone Pinions.					
No. Pattern.	No. Teeth	Face.	Pitch.	Diameter.	Weight.
No.	Teeth.	Inch.	Inch.	Inch.	Lbs.
1	45	8	2	28 ⁸⁰	
2	41	7 $\frac{1}{4}$	1 $\frac{3}{4}$	22 ⁹⁶	
3	38	7 $\frac{1}{4}$	1 $\frac{3}{4}$	21 ²⁸	
4	30	7 $\frac{1}{4}$	1 $\frac{3}{4}$	16 ⁸⁰	
5	28	7 $\frac{1}{2}$	2	17 ⁹²	
6	27	8 $\frac{1}{4}$	1 $\frac{7}{8}$	16 ²⁰	
7	27	7 $\frac{1}{4}$	1 $\frac{3}{4}$	15 ¹²	
8	25	7 $\frac{1}{4}$	2	16	
9	25	7 $\frac{1}{4}$	1 $\frac{3}{4}$	14	
10	22	8	2	14	
11	22	7 $\frac{1}{4}$	1 $\frac{3}{4}$	12 ³²	
12	20	7 $\frac{1}{2}$	2	12 ⁸⁰	
13	18	7	1 $\frac{3}{4}$	10 ⁰⁸	
14	16	8 $\frac{1}{4}$	2 $\frac{1}{8}$	10 ⁸⁸	
15	16	7 $\frac{1}{4}$	2	10 ²⁴	
16	15	6 $\frac{1}{2}$	2 $\frac{1}{2}$	12	
17	34	7 $\frac{1}{4}$	1 $\frac{3}{4}$	19 ⁰⁴	
18	48	7 $\frac{1}{4}$	1 $\frac{3}{4}$	26 ⁸⁸	
19	35	8 $\frac{1}{4}$	1 $\frac{3}{4}$	19 ⁶⁰	
20	22	8	2 $\frac{1}{2}$	17 ⁶⁰	
21	33	7 $\frac{1}{2}$	2	21 ¹²	
22	31	7 $\frac{1}{4}$	1 $\frac{3}{4}$	17 ³⁶	
23	33	7 $\frac{1}{4}$	1 $\frac{3}{4}$	18 ⁴⁸	
24	127	7 $\frac{1}{2}$	1 $\frac{3}{4}$	71 ¹²	
25	32	7 $\frac{1}{2}$	1 $\frac{3}{4}$	17 ⁹²	
26	59	4 $\frac{1}{2}$	1 $\frac{1}{2}$	28 ³²	
27	25	4 $\frac{1}{2}$	1 $\frac{1}{2}$	12	
28	18	7 $\frac{1}{4}$	2	11 ⁵²	
29	23	8	1 $\frac{7}{8}$	13 ⁸⁰	
30	54	7 $\frac{1}{4}$	1 $\frac{3}{4}$	30 ²⁴	
31	36	7 $\frac{1}{4}$	1 $\frac{3}{4}$	20 ¹⁶	
32	44	7 $\frac{1}{4}$	1 $\frac{3}{4}$	24 ⁶⁴	

Stone Pinions.						
No. Pattern.	No. Teeth.	Face.	Pitch.	Diameter.	Weight.	
Inch.	Teeth.	Inch.	Inch.	Inch.		Sleeve.
33	31	$4\frac{1}{2}$	$1\frac{1}{2}$	14^{88}		
34	39	$4\frac{1}{2}$	$1\frac{1}{2}$	18^{72}		
35	19	$7\frac{1}{4}$	$2\frac{1}{2}$	15^{20}		
36	67	$7\frac{1}{4}$	$1\frac{3}{4}$	37^{52}		
37	29	$7\frac{1}{4}$	$1\frac{3}{4}$	16^{24}		
38	28	$7\frac{1}{4}$	$1\frac{3}{4}$	15^{68}		
39	64	$7\frac{1}{4}$	$1\frac{3}{4}$	35^{84}		
40	86	$7\frac{1}{4}$	$1\frac{3}{4}$	48^{16}		
41	59	$7\frac{1}{4}$	2	37^{76}		
42	44	$6\frac{3}{4}$	$1\frac{5}{8}$	22^{88}		
43	32	$7\frac{1}{4}$	2	20^{48}		
*A	27	$7\frac{1}{4}$	2	17^{28}		
44	52	$7\frac{1}{4}$	$1\frac{3}{4}$	29^{12}		
45	38	$7\frac{1}{4}$	2	24^{32}		
46	30	$7\frac{1}{4}$	2	19^{20}		
47	31	9	3	29^{76}		
48	75	$7\frac{1}{4}$	$1\frac{3}{4}$	42		
49	19	$6\frac{1}{2}$	$2\frac{3}{4}$	16^{72}		
†50	21	$7\frac{1}{4}$	$2\frac{1}{4}$	15^{12}		
51	52	$7\frac{1}{4}$	$1\frac{7}{8}$	31^{20}		
52	23	8	2	14^{72}		
53	20	$4\frac{1}{2}$	$1\frac{1}{2}$	9^{60}		
54	33	$4\frac{1}{2}$	$1\frac{1}{2}$	15^{84}		
55	40	$7\frac{1}{4}$	$1\frac{3}{4}$	22^{40}		
56	50	$7\frac{1}{2}$	$1\frac{3}{4}$	28		
57	31	8	$2\frac{1}{2}$	24^{80}		
58	46	$7\frac{1}{4}$	$1\frac{3}{4}$	25^{76}		
59	81	$7\frac{1}{4}$	$1\frac{3}{4}$	45^{36}		
60	40	$14\frac{1}{2}$	3	38^{40}		
61	61	$7\frac{1}{4}$	2	39^{04}		
62	94	$7\frac{1}{4}$	$1\frac{3}{4}$	52^{64}		
63	22	$4\frac{1}{4}$	$1\frac{1}{2}$	10^{56}		

* Can make 2 inch pitch when dressed.

† Teeth short to match old wheel.

Stone Pinions.						
No. Pattern.	No. Teeth.	Face.	Pitch.	Diameter.	Weight.	
Inch.	Teeth.	Inch.	Inch.	Inch.		Sleeve.
64	68	4 $\frac{1}{2}$	1 $\frac{1}{2}$	32 ⁶⁴		
65	19	3 $\frac{1}{4}$	1 $\frac{1}{2}$	9 ¹²		
66	42	12	3	40 ³²		
67	24	6 $\frac{1}{4}$	1 $\frac{3}{4}$	13 ⁴⁴		
68	16	3	1	5 ¹²		
69	35	3 $\frac{1}{2}$	1 $\frac{1}{4}$	14		
70	25	3	1	8		

Bevel Core Wheels.

No. Pattern.	No. Teeth	Face.	Pitch.	Diameter.	Backing.	Face of Rim.	Depth of Rim	Length of Mortice.	Thickness of Mortice.	Depth of Eye.
No.	Teeth.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
1	90	8	$2\frac{1}{4}$	64^{80}	$6\frac{5}{8}$	$8\frac{3}{4}$	$3\frac{1}{2}$	$7\frac{3}{8}$	$1\frac{3}{8}$	$9\frac{3}{4}$
	40	8	$2\frac{1}{4}$	28^{80}	$1\frac{3}{4}$					$9\frac{1}{4}$
2	84	$9\frac{1}{4}$	$2\frac{3}{8}$	63^{84}	$6\frac{3}{4}$	$10\frac{1}{8}$	$3\frac{1}{4}$	$8\frac{3}{4}$	$1\frac{1}{2}$	$10\frac{5}{8}$
	38	$9\frac{1}{4}$	$2\frac{3}{8}$	28^{88}	2					$10\frac{1}{8}$
3	75	6	2	48	4	$7\frac{1}{8}$	$2\frac{1}{2}$	6	$1\frac{1}{4}$	6
	26	6	2	16^{64}	$1\frac{3}{4}$					$7\frac{1}{4}$
4	61	4	$1\frac{1}{2}$	29^{28}	$3\frac{5}{8}$	5	$1\frac{3}{4}$	4	$\frac{13}{16}$	$5\frac{7}{8}$
	30	$4\frac{1}{4}$	$1\frac{1}{2}$	14^{40}	$1\frac{5}{8}$					$5\frac{1}{4}$
5	42	5	$1\frac{1}{2}$	20^{16}	$2\frac{5}{8}$	$5\frac{3}{4}$	$2\frac{3}{8}$	$4\frac{3}{4}$	$\frac{3}{4}$	$5\frac{3}{4}$
	33	5	$1\frac{1}{2}$	15^{84}	$2\frac{1}{8}$					$5\frac{7}{8}$
6	60	5	$1\frac{3}{8}$	26^{40}	$2\frac{5}{8}$	$5\frac{7}{8}$	2	$4\frac{3}{4}$	$\frac{3}{4}$	$5\frac{1}{4}$
	31	5	$1\frac{3}{8}$	13^{64}	$1\frac{1}{2}$					$5\frac{3}{4}$
7	73	3	$1\frac{1}{2}$	35^{04}	$3\frac{5}{8}$	$4\frac{1}{8}$	$1\frac{5}{8}$	3	$\frac{15}{16}$	5
	21	3	$1\frac{1}{2}$	10^{08}	1					$3\frac{7}{8}$
8	40	$3\frac{1}{2}$	$1\frac{1}{4}$	16	$2\frac{1}{4}$	$4\frac{1}{8}$	$1\frac{1}{2}$	$3\frac{3}{8}$	$\frac{11}{16}$	$3\frac{5}{8}$
	25	$3\frac{1}{2}$	$1\frac{1}{4}$	10	$1\frac{5}{8}$					$4\frac{1}{2}$
9	56	$6\frac{3}{4}$	2	35^{84}	$4\frac{1}{4}$	$8\frac{1}{8}$	$2\frac{1}{2}$	$6\frac{3}{4}$	$1\frac{1}{8}$	$7\frac{7}{8}$
	32	$6\frac{3}{4}$	2	20^{48}	$2\frac{1}{2}$					$8\frac{3}{8}$
10	64	6	$1\frac{3}{4}$	35^{84}	$3\frac{1}{2}$	$7\frac{1}{2}$	$2\frac{1}{2}$	6	1	$6\frac{1}{2}$
	33	6	$1\frac{3}{4}$	18^{48}	$1\frac{3}{4}$					$7\frac{1}{8}$
11	44	6	$1\frac{3}{4}$	24^{64}	$2\frac{3}{4}$	$6\frac{3}{4}$	$2\frac{1}{2}$	$5\frac{3}{4}$	$\frac{15}{16}$	$4\frac{1}{4}$
	29	6	$1\frac{3}{4}$	16^{24}	$2\frac{1}{8}$					$7\frac{1}{2}$
12	44	6	2	28^{16}	3	$7\frac{1}{4}$	$2\frac{1}{4}$	6	$1\frac{1}{4}$	$6\frac{1}{4}$
	29	6	2	18^{56}	$2\frac{1}{2}$					$7\frac{1}{2}$
13	54	6	2	34^{64}	$3\frac{3}{8}$	$7\frac{1}{4}$	$2\frac{1}{4}$	6	$1\frac{1}{4}$	$6\frac{7}{8}$
	36	6	2	23^{04}	$2\frac{5}{8}$					$7\frac{1}{8}$
14	74	7	2	47^{36}	$3\frac{3}{4}$	$8\frac{1}{8}$	$2\frac{1}{2}$	7	$1\frac{1}{4}$	$6\frac{5}{8}$
	33	7	2	21^{12}	$1\frac{7}{8}$					8
15	53	$5\frac{1}{2}$	$1\frac{5}{8}$	27^{56}	$2\frac{3}{4}$	$6\frac{1}{2}$	$2\frac{3}{8}$	$5\frac{1}{4}$	$\frac{7}{8}$	$5\frac{1}{2}$
	27	$5\frac{1}{2}$	$1\frac{5}{8}$	14^{04}	$1\frac{3}{8}$					$6\frac{3}{8}$
16	78	7	2	49^{92}	4	8	$2\frac{5}{8}$	$6\frac{3}{4}$	$1\frac{1}{4}$	$7\frac{1}{2}$
	40	$7\frac{1}{4}$	2	25^{60}	$1\frac{3}{4}$					$8\frac{1}{8}$

Bevel Core Wheels.

Pattern.	No. Teeth.	Face.	Pitch.	Diameter.	Backing.	Face of Rim.	Depth of Rim.	Length of Mortice.	Thickness of Mortice.	Depth of Eye.
No.	Teeth.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
17	70	8	2	44 ⁸⁰	3 $\frac{1}{2}$	9	2 $\frac{3}{4}$	7 $\frac{3}{4}$	1 $\frac{1}{4}$	8 $\frac{1}{2}$
	52	8 $\frac{1}{8}$	2	33 ²⁸	2 $\frac{1}{16}$ ³					9 $\frac{1}{8}$
18	112	7	2	71 ⁶⁸	6 $\frac{1}{4}$	8 $\frac{1}{4}$	2 $\frac{3}{4}$	6 $\frac{3}{4}$	1 $\frac{1}{4}$	8 $\frac{3}{8}$
	37	7 $\frac{1}{4}$	2	23 ⁶⁸	1 $\frac{1}{4}$					8 $\frac{1}{8}$
19	92	7	2	58 ⁸⁸	6	7 $\frac{7}{8}$	2 $\frac{5}{8}$	6 $\frac{3}{4}$	1 $\frac{1}{4}$	8 $\frac{5}{8}$
	36	7 $\frac{1}{4}$	2	23 ⁰⁴	1 $\frac{3}{8}$					8 $\frac{1}{8}$
A	56	6	1 $\frac{5}{8}$	29 ¹²	4	7	2 $\frac{3}{8}$	5 $\frac{1}{16}$ ⁵	1 $\frac{3}{16}$	Angle.
	46	6	1 $\frac{5}{8}$	23 ⁹²	2 $\frac{7}{8}$					"
20	30	2 $\frac{1}{2}$	1 $\frac{1}{4}$	12	2	3 $\frac{3}{16}$	1 $\frac{1}{4}$	2 $\frac{1}{2}$	1 $\frac{1}{16}$	3 $\frac{1}{8}$
	26	2 $\frac{1}{2}$	1 $\frac{1}{4}$	10 ⁴⁰	1 $\frac{3}{8}$					3 $\frac{1}{8}$
21	152	7	2	97 ²⁸	7 $\frac{3}{8}$	8 $\frac{1}{4}$	2 $\frac{7}{8}$	6 $\frac{3}{4}$	1 $\frac{1}{4}$	9
	36	7	2	23 ⁰⁴	1 $\frac{1}{2}$					8 $\frac{1}{2}$
22	46	7	2	29 ⁴⁴	2 $\frac{3}{4}$	8 $\frac{1}{4}$	2 $\frac{5}{8}$	7	1 $\frac{3}{16}$	6
	38	7	2	24 ³²	2 $\frac{7}{8}$					8 $\frac{1}{2}$
23	58	6	1 $\frac{3}{4}$	32 ⁴⁸	4 $\frac{1}{4}$	7 $\frac{1}{4}$	2 $\frac{1}{2}$	6	1	7 $\frac{1}{4}$
	28	6	1 $\frac{3}{4}$	15 ⁶⁸	2					7 $\frac{1}{2}$
24	46	4	1 $\frac{3}{8}$	20 ²⁴	2 $\frac{3}{4}$	5 $\frac{1}{8}$	1 $\frac{5}{8}$	4	1 $\frac{3}{16}$	4
	25	4	1 $\frac{3}{8}$	11	1 $\frac{1}{2}$					5
25	54	5	1 $\frac{1}{2}$	25 ⁹²	3 $\frac{1}{8}$	5 $\frac{1}{16}$ ⁵	1 $\frac{3}{4}$	4 $\frac{7}{8}$	1 $\frac{3}{16}$	5 $\frac{1}{4}$
	24	5	1 $\frac{1}{2}$	11 ⁵²	1 $\frac{1}{4}$					5 $\frac{3}{4}$
26	56	8	2 $\frac{1}{4}$	40 ³²	3	9 $\frac{1}{4}$	3 $\frac{1}{8}$	7 $\frac{7}{8}$	1 $\frac{3}{8}$	9
	55	8	2 $\frac{1}{4}$	39 ⁶⁰	3 $\frac{3}{4}$					9
27	80	12	3	76 ⁸⁰	8 $\frac{1}{4}$	13 $\frac{5}{8}$	4	11 $\frac{3}{4}$	1 $\frac{7}{8}$	14 $\frac{1}{2}$
	49	12	3	47 ⁰⁴	3 $\frac{1}{8}$					13
28	63	6	1 $\frac{3}{4}$	35 ²⁸	3 $\frac{5}{16}$	7 $\frac{3}{8}$	2 $\frac{1}{2}$	6	1 $\frac{3}{16}$	8
	60	6	1 $\frac{3}{4}$	33 ⁶⁰	3 $\frac{3}{4}$					7 $\frac{7}{8}$
29	56	6	1 $\frac{5}{8}$	29 ¹²	4	7	2 $\frac{3}{8}$	5 $\frac{1}{16}$ ⁵	1 $\frac{3}{16}$	6 $\frac{7}{8}$
	46	6	1 $\frac{5}{8}$	23 ⁹²	2 $\frac{1}{2}$					7
30	92	7	2	58 ⁸⁸	6 $\frac{7}{8}$	8 $\frac{1}{8}$	2 $\frac{5}{8}$	6 $\frac{3}{4}$	1 $\frac{1}{4}$	8 $\frac{5}{8}$
	26	7	2	16 ⁶⁴	1 $\frac{1}{4}$					8 $\frac{1}{2}$
31	72	4	1 $\frac{1}{2}$	31 ⁵⁶	4 $\frac{1}{16}$	5	1 $\frac{3}{4}$	4	1 $\frac{3}{16}$	5 $\frac{3}{8}$
	22	4	1 $\frac{1}{2}$	10 ⁵⁶	1 $\frac{5}{16}$					4 $\frac{1}{16}$ ⁵

Bevel Core Wheels.

Pattern.	No. Teeth.	Face.	Pitch.	Diameter.	Backing.	Face of Rim.	Depth of Rim.	Length of Mortice.	Thickness of Mortice.	Depth of Eye.
No.	Teeth.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
32 {	66	7	2	42	$3\frac{1}{2}$	$8\frac{3}{4}$	$2\frac{5}{8}$	7	$1\frac{1}{4}$	$8\frac{5}{8}$
	60	7	2	38^{40}	$3\frac{3}{8}$					$8\frac{1}{4}$
33 {	63	9	$2\frac{1}{2}$	50^{40}	$5\frac{3}{4}$	$10\frac{1}{16}$	$3\frac{1}{2}$	9	$1\frac{9}{16}$	$10\frac{1}{2}$
	36	9	$2\frac{1}{2}$	28^{80}	$2\frac{1}{2}$					$10\frac{1}{8}$
34 {	67	7	2	42^{88}	$5\frac{1}{4}$	$8\frac{3}{8}$	$2\frac{1}{16}$	7	$1\frac{1}{4}$	$7\frac{7}{8}$
	26	$7\frac{1}{4}$	2	16^{64}	$1\frac{1}{2}$					$8\frac{1}{8}$
35 {	74	8	$2\frac{1}{4}$	53^{28}	$2\frac{1}{16}$	$9\frac{9}{16}$	3	8	$1\frac{7}{16}$	$8\frac{7}{8}$
	45	$8\frac{1}{4}$	$2\frac{1}{4}$	32^{40}	$1\frac{3}{16}$					$9\frac{1}{2}$
36 {	42	4	$1\frac{3}{8}$	18^{48}	$1\frac{3}{4}$	5	$1\frac{1}{16}$	4	$\frac{3}{4}$	$4\frac{3}{4}$
	40	4	$1\frac{3}{8}$	17^{60}	$2\frac{1}{16}$					$4\frac{3}{4}$
37 {	66	8	$2\frac{1}{2}$	52^{80}	5	$9\frac{3}{4}$	$3\frac{1}{4}$	8	$1\frac{9}{16}$	$9\frac{1}{2}$
	39	8	$2\frac{1}{2}$	31^{20}	$2\frac{5}{8}$					$9\frac{1}{8}$
38 {	42	$3\frac{1}{2}$	$1\frac{1}{4}$	16^{80}	$2\frac{3}{8}$	$4\frac{3}{8}$	$1\frac{5}{8}$	$3\frac{1}{2}$	$1\frac{1}{16}$	$4\frac{7}{8}$
	38	$3\frac{1}{2}$	$1\frac{1}{4}$	15^{20}	$1\frac{7}{8}$					$4\frac{1}{4}$
39 {	125	7	2	80	$6\frac{1}{4}$	$8\frac{3}{8}$	$2\frac{5}{8}$	7	$1\frac{1}{4}$	$7\frac{7}{8}$
	31	$7\frac{1}{4}$	2	19^{84}	$1\frac{1}{8}$					$8\frac{1}{4}$
40 {	54	7	2	34^{56}	$2\frac{1}{16}$	$7\frac{5}{8}$	$2\frac{5}{8}$	7	$1\frac{1}{4}$	$7\frac{7}{8}$
	45	$7\frac{1}{4}$	2	28^{80}	$3\frac{1}{8}$					$8\frac{1}{4}$
41 {	35	$5\frac{1}{2}$	$1\frac{5}{8}$	18^{20}	$3\frac{1}{4}$	$6\frac{5}{8}$	$2\frac{1}{8}$	$5\frac{1}{2}$	$\frac{7}{8}$	6
	31	$5\frac{1}{2}$	$1\frac{5}{8}$	16^{12}	$2\frac{3}{8}$					$6\frac{1}{2}$
42 {	64	7	2	40^{96}	$3\frac{7}{8}$	$8\frac{3}{8}$	$2\frac{5}{8}$	7	$1\frac{1}{4}$	$7\frac{7}{8}$
	40	$7\frac{1}{4}$	2	25^{60}	$2\frac{7}{16}$					$8\frac{1}{4}$
43 {	68	7	2	43^{52}	$5\frac{1}{8}$	$8\frac{3}{8}$	$2\frac{5}{8}$	7	$1\frac{1}{4}$	$7\frac{1}{4}$
	22	7	2	14^{08}	$1\frac{1}{8}$					$7\frac{7}{8}$
44 {	76	8	2	48^{64}	$4\frac{1}{16}$	$9\frac{3}{8}$	$2\frac{5}{8}$	8	$1\frac{1}{4}$	$7\frac{7}{8}$
	38	$8\frac{1}{4}$	2	24^{32}	$1\frac{1}{16}$					$8\frac{7}{8}$
45 {	48	$5\frac{1}{2}$	$1\frac{5}{8}$	24^{96}	$2\frac{1}{16}$	$6\frac{5}{8}$	$2\frac{1}{8}$	$5\frac{1}{2}$	$\frac{7}{8}$	$5\frac{5}{8}$
	36	$5\frac{1}{2}$	$1\frac{5}{8}$	18^{72}	$2\frac{1}{8}$					$6\frac{3}{8}$
*B {	56	8	$2\frac{1}{4}$	40^{32}	$6\frac{1}{4}$	$9\frac{5}{8}$	$3\frac{1}{8}$	8	$1\frac{3}{8}$	$9\frac{1}{8}$
	55	$8\frac{1}{4}$	$2\frac{1}{4}$	39^{60}	$6\frac{3}{4}$					$9\frac{1}{8}$
46 {	68	8	$2\frac{1}{2}$	54^{40}	3	$9\frac{3}{4}$	$3\frac{1}{4}$	8	$1\frac{9}{16}$	8
	47	8	$2\frac{1}{2}$	37^{60}	$3\frac{1}{16}$					$9\frac{1}{4}$

* Shaft obtuse angle, 137 degrees.

Bevel Core Wheels.

Pattern.	No. Teeth.	Face.	Pitch.	Diameter.	Backing.	Face of Rim.	Depth of Rim.	Length of Mortice.	Thickness of Mortice.	Depth of Eye
No.	Teeth.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
47	67	5	$1\frac{1}{2}$	32^{16}	$3\frac{7}{16}$	$6\frac{1}{8}$	2	5	$1\frac{3}{16}$	$5\frac{1}{2}$
	28	5	$1\frac{1}{2}$	13^{44}	$1\frac{3}{16}$					6
48	50	4	$1\frac{1}{2}$	24	$1\frac{7}{8}$	$5\frac{1}{8}$	$1\frac{7}{8}$	4	$1\frac{3}{16}$	$5\frac{1}{8}$
	49	4	$1\frac{1}{2}$	23^{52}	$2\frac{1}{2}$					$5\frac{1}{8}$
49	42	11	3	40^{32}	$4\frac{1}{2}$	$12\frac{1}{2}$	4	11	$1\frac{1}{16}$	$12\frac{1}{2}$
	60	11	3	57^{60}	$6\frac{3}{4}$					12
50	68	10	$2\frac{3}{4}$	59^{84}	6	$11\frac{3}{4}$	$3\frac{3}{4}$	10	$1\frac{5}{8}$	$12\frac{1}{2}$
	54	10	$2\frac{3}{4}$	47^{52}						11
51	74	$4\frac{1}{2}$	$1\frac{1}{2}$	35^{52}	$3\frac{1}{2}$	$5\frac{5}{8}$	$1\frac{3}{4}$	$4\frac{1}{2}$	$1\frac{3}{16}$	$5\frac{1}{8}$
	25	$4\frac{1}{2}$	$1\frac{1}{2}$	12	1					$5\frac{3}{8}$
52	98	7	2	62^{72}	$6\frac{1}{2}$	$8\frac{3}{8}$	$2\frac{5}{8}$	7	$1\frac{1}{4}$	$8\frac{3}{4}$
	35	7	2	22^{40}	$1\frac{1}{4}$					$7\frac{7}{8}$
53	68	6	$1\frac{3}{4}$	38^{08}	$4\frac{3}{4}$	$7\frac{1}{4}$	$2\frac{1}{2}$	6	1	$7\frac{1}{4}$
	28	6	$1\frac{3}{4}$	15^{68}	$1\frac{1}{4}$					$6\frac{3}{4}$
54	112	7	2	71^{68}	6	$8\frac{1}{2}$	$2\frac{3}{4}$	7	$1\frac{1}{4}$	$8\frac{5}{8}$
	44	$7\frac{1}{4}$	2	28^{16}	$1\frac{1}{2}$					$8\frac{7}{8}$
55	60	9	$2\frac{1}{2}$	48	$5\frac{3}{4}$	$10\frac{1}{16}$	$3\frac{1}{2}$	9	$1\frac{9}{16}$	$12\frac{1}{2}$
	58	$9\frac{1}{4}$	$2\frac{1}{2}$	46^{40}	$4\frac{1}{4}$					10
56	61	$5\frac{1}{2}$	$1\frac{5}{8}$	31^{72}	$3\frac{7}{8}$	$6\frac{5}{8}$	$2\frac{1}{4}$	$5\frac{1}{2}$	$1\frac{3}{16}$	$6\frac{1}{2}$
	30	$5\frac{1}{2}$	$1\frac{5}{8}$	15^{60}	$1\frac{3}{8}$					$6\frac{3}{8}$
57	125	5	$1\frac{3}{4}$	70	6	$6\frac{1}{2}$	$2\frac{1}{4}$	5	1	$6\frac{3}{4}$
	25	5	$1\frac{3}{4}$	14	$\frac{3}{4}$					$5\frac{3}{4}$
58	46	$4\frac{1}{2}$	$1\frac{1}{2}$	22^{08}	$3\frac{1}{2}$	$5\frac{5}{8}$	$1\frac{3}{4}$	$4\frac{1}{2}$	$1\frac{3}{16}$	6
	32	$4\frac{1}{2}$	$1\frac{1}{2}$	15^{36}	$1\frac{5}{8}$					$5\frac{1}{4}$
59	63	10	3	60^{48}	8	$11\frac{3}{4}$	4	10	$1\frac{1}{16}$	13
	36	10	3	34^{56}	$2\frac{3}{4}$					$11\frac{1}{8}$
60	56	6	2	35^{84}	$4\frac{3}{8}$	$7\frac{3}{8}$	$2\frac{5}{8}$	6	$1\frac{1}{4}$	$8\frac{1}{4}$
	42	6	2	26^{88}	$2\frac{3}{8}$					
61	52	10	3	49^{92}	$5\frac{3}{4}$	$11\frac{3}{4}$	4	10	$1\frac{1}{16}$	$11\frac{1}{2}$
	29	10	3	27^{84}	$2\frac{1}{2}$					11
62	50	10	3	48	$6\frac{1}{4}$	$11\frac{3}{4}$	4	10	$1\frac{1}{16}$	11
	25	10	3	24	$2\frac{3}{8}$					$11\frac{1}{4}$
63	67	9	$2\frac{1}{4}$	48^{24}	$4\frac{3}{4}$	$11\frac{1}{4}$	$3\frac{1}{4}$	9	$1\frac{3}{8}$	11
	50	9	$2\frac{1}{4}$	36	3					$9\frac{3}{4}$
64	30	$2\frac{1}{2}$	$1\frac{1}{4}$	12	$2\frac{1}{8}$	$3\frac{1}{8}$	$1\frac{1}{8}$	$2\frac{1}{2}$	$\frac{9}{16}$	$3\frac{1}{2}$
	20	$2\frac{1}{2}$	$1\frac{1}{4}$	8	$\frac{3}{4}$					$2\frac{1}{2}$
65	80	12	3	76^{80}	$8\frac{1}{4}$	$13\frac{5}{8}$	4	$11\frac{3}{4}$	$1\frac{7}{8}$	$14\frac{1}{2}$
	42	12	3	40^{32}						13
66	60	12	$3\frac{1}{4}$	62^{40}	7	$14\frac{1}{4}$	$4\frac{1}{4}$	12	$1\frac{7}{8}$	15
	51	12	$3\frac{1}{4}$	53^{04}	$4\frac{1}{2}$					13

Bevel Core Wheels.

Pattern.	No. Teeth.	Face.	Pitch.	Diameter.	Backing.	Face of Rim.	Depth of Rim	Length of Mortice.	Thickness of Mortice.	Depth of Eye
No.	Teeth.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
67	70	14	$3\frac{1}{2}$	78^{40}	$9\frac{1}{4}$	$16\frac{3}{8}$	$4\frac{1}{2}$	14	2	16
	38	14	$3\frac{1}{2}$	42^{56}	3					15
68	59	5	$1\frac{3}{4}$	33^{04}	$4\frac{1}{8}$	$6\frac{3}{4}$	$2\frac{1}{4}$	5	1	$7\frac{3}{8}$
	41	5	$1\frac{3}{4}$	22^{96}	$1\frac{7}{8}$					$7\frac{3}{4}$
69	56	12	$3\frac{1}{4}$	58^{24}	$7\frac{1}{2}$	$14\frac{1}{4}$	$4\frac{1}{4}$	12	$1\frac{7}{8}$	15
	42	12	$3\frac{1}{4}$	43^{68}	$4\frac{5}{8}$					$13\frac{1}{2}$

Miter Wheels.

No. Pattern.	No. of Teeth.	Face.	Pitch.	Diameter.	Backing.	Depth of Eye.
No.	Teeth.	Inch.	Inch.	Inch.	Inch.	Inch.
1	42	$2\frac{1}{4}$	$1\frac{1}{8}$	15^{12}	$1\frac{3}{4}$	3
2	38	$2\frac{1}{2}$	1	12^{16}	$2\frac{1}{8}$	$3\frac{3}{4}$
3	52	4	$1\frac{1}{2}$	24^{96}	$3\frac{1}{4}$	$5\frac{1}{8}$
4	56	$2\frac{1}{2}$	$1\frac{1}{8}$	20^{16}	$2\frac{3}{8}$	$3\frac{7}{8}$
5	60	5	$1\frac{3}{4}$	33^{60}	$3\frac{1}{2}$	$6\frac{3}{8}$
6	67	7	$2\frac{1}{4}$	48^{24}	$4\frac{5}{8}$	$8\frac{1}{8}$
7	60	3	$1\frac{1}{4}$	24	$2\frac{1}{2}$	$4\frac{3}{8}$
8	44	$2\frac{3}{4}$	$1\frac{1}{8}$	15^{84}	2	$3\frac{7}{8}$
9	30	2	1	9^{60}	$1\frac{5}{8}$	3
10	25	$1\frac{1}{2}$	$\frac{3}{4}$	6	$\frac{7}{8}$	$1\frac{5}{8}$
11	38	2	1	12^{16}	$1\frac{1}{2}$	$2\frac{7}{8}$
12	43	$2\frac{1}{2}$	$1\frac{1}{8}$	15^{48}	$1\frac{7}{8}$	$3\frac{1}{2}$
13	26	$1\frac{3}{4}$	$\frac{7}{8}$	7^{28}	$\frac{7}{8}$	2
14	54	3	$1\frac{1}{8}$	19^{44}	$2\frac{3}{8}$	$4\frac{1}{4}$
15	60	$3\frac{1}{2}$	$1\frac{3}{8}$	26^{40}	$2\frac{7}{8}$	5
16	62	$2\frac{3}{4}$	$1\frac{1}{8}$	22^{32}	$2\frac{1}{16}$	$3\frac{1}{16}$
17	42	$2\frac{3}{4}$	$1\frac{1}{8}$	15^{12}	$1\frac{7}{8}$	$3\frac{1}{2}$
18	64	6	$1\frac{3}{4}$	35^{84}	$3\frac{3}{4}$	$7\frac{1}{2}$
19	50	$3\frac{1}{2}$	$1\frac{1}{4}$	20	$2\frac{1}{2}$	$4\frac{3}{4}$
20	50	3	$1\frac{1}{8}$	18	$1\frac{1}{16}$	$3\frac{3}{4}$
21	44	$2\frac{1}{4}$	1	14^{08}	$1\frac{1}{4}$	$2\frac{3}{4}$
22	63	$4\frac{1}{2}$	$1\frac{1}{2}$	30^{24}	$3\frac{1}{4}$	6
23	32	2	$\frac{7}{8}$	8^{96}	$1\frac{1}{8}$	3
24	24	2	$1\frac{1}{8}$	8^{64}	2 & 1	$2\frac{1}{8}$ & $3\frac{1}{16}$

Bevel Wheels.

No. Pattern.	No. of Teeth.	Face.	Pitch.	Diameter.	Backing.	Depth of Eye.
No.	Teeth.	Inch.	Inch.	Inch.	Inch.	Inch.
1	119	8	2	76 ¹⁶	7 $\frac{1}{2}$	9 $\frac{1}{2}$
	40	8	2	25 ⁶⁰	2 $\frac{1}{4}$	9 $\frac{5}{8}$
2	107	8	2 $\frac{1}{4}$	77 ⁰⁴	7 $\frac{1}{2}$	9 $\frac{3}{8}$
	43	8	2 $\frac{1}{4}$	30 ⁹⁶	2 $\frac{1}{2}$	9 $\frac{5}{8}$
3	70	8	2	44 ⁸⁰	5 $\frac{1}{4}$	9 $\frac{1}{2}$
	52	8	2	33 ²⁸	3 $\frac{1}{2}$	9 $\frac{3}{8}$
4	56	8	2	35 ⁸⁴	4 $\frac{1}{2}$	8 $\frac{3}{8}$
	39	8	2	24 ⁹⁶	2 $\frac{1}{2}$	8 $\frac{1}{2}$
5	106	6	1 $\frac{3}{4}$	59 ³⁶	5	7 $\frac{3}{4}$
	70	6	1 $\frac{3}{4}$	39 ²⁰	2 $\frac{3}{4}$	7 $\frac{1}{4}$
6	81	4	1 $\frac{3}{8}$	35 ⁶⁴	4 $\frac{3}{4}$	5 $\frac{1}{2}$
	27	4	1 $\frac{3}{8}$	11 ⁸⁸	1 $\frac{3}{8}$	5 $\frac{1}{8}$
7	96	3	1 $\frac{1}{8}$	34 ⁵⁶	3 $\frac{7}{8}$	4 $\frac{3}{8}$
	34	3	1 $\frac{1}{8}$	12 ²⁴	1 $\frac{1}{2}$	4 $\frac{1}{2}$
8	96	2 $\frac{3}{4}$	1 $\frac{1}{4}$	38 ⁴⁰	4	4 $\frac{1}{8}$
	23	2 $\frac{3}{4}$	1 $\frac{1}{4}$	9 ²⁰	1	3 $\frac{3}{8}$
9	60	3 $\frac{1}{2}$	1 $\frac{1}{4}$	24	3 $\frac{1}{4}$	4 $\frac{1}{8}$
	42	3 $\frac{1}{2}$	1 $\frac{1}{4}$	16 ⁸⁰	2 $\frac{1}{8}$	4 $\frac{7}{8}$
10	57	3	1 $\frac{1}{4}$	22 ⁸⁰	3	4 $\frac{3}{8}$
	40	3	1 $\frac{1}{4}$	16	2	4 $\frac{1}{4}$
11	46	3	1 $\frac{1}{4}$	18 ⁴⁰	2 $\frac{5}{8}$	3 $\frac{3}{4}$
	24	3	1 $\frac{1}{4}$	9 ⁶⁰	1 $\frac{1}{4}$	3 $\frac{3}{4}$
12	64	3	1 $\frac{1}{8}$	23 ⁰⁴	2 $\frac{7}{8}$	4 $\frac{1}{4}$
	40	3	1 $\frac{1}{8}$	14 ⁴⁰	2	4 $\frac{3}{8}$
13	46	3	1 $\frac{1}{8}$	16 ⁵⁶	2 $\frac{3}{8}$	4 $\frac{5}{8}$
	45	3	1 $\frac{1}{8}$	16 ²⁰	2 $\frac{3}{8}$	4 $\frac{3}{8}$
14	45	3 $\frac{1}{2}$	1 $\frac{1}{4}$	18	2 $\frac{3}{4}$	4 $\frac{7}{8}$
	44	3 $\frac{1}{2}$	1 $\frac{1}{4}$	17 ⁶⁰	2 $\frac{3}{8}$	4 $\frac{3}{4}$
15	61	9	2 $\frac{1}{2}$	48 ⁸⁰	5 $\frac{1}{2}$	11 $\frac{1}{4}$
	60	9	2 $\frac{1}{2}$	48	5 $\frac{3}{8}$	11
16	70	3	1 $\frac{1}{8}$	25 ²⁰	3 $\frac{1}{4}$	4 $\frac{1}{4}$
	40	3	1 $\frac{1}{8}$	14 ⁴⁰	1 $\frac{5}{8}$	4 $\frac{1}{4}$

Bevel Wheels.

No. Pattern.	No. of Teeth.	Face.	Pitch.	Diameter.	Backing.	Depth of Eye.
No.	Teeth.	Inch.	Inch.	Inch.	Inch.	Inch.
17	73	3	$1\frac{1}{8}$	26^{28}	$3\frac{1}{4}$	$4\frac{1}{4}$
	37	3	$1\frac{1}{8}$	13^{32}	$1\frac{5}{8}$	$4\frac{3}{8}$
18	51	4	$1\frac{3}{8}$	22^{44}	$3\frac{1}{4}$	$5\frac{3}{8}$
	40	4	$1\frac{3}{8}$	17^{60}	$2\frac{1}{2}$	$5\frac{3}{8}$
19	67	$2\frac{3}{4}$	1	21^{44}	$2\frac{5}{8}$	4
	50	$2\frac{3}{4}$	1	16	$2\frac{1}{8}$	$4\frac{1}{4}$
20	60	3	$1\frac{1}{4}$	24	$2\frac{3}{4}$	$4\frac{3}{8}$
	50	3	$1\frac{1}{4}$	20	$2\frac{3}{8}$	$4\frac{3}{8}$
21	60	5	$1\frac{3}{4}$	33^{60}	$3\frac{7}{8}$	$6\frac{1}{2}$
	54	5	$1\frac{3}{4}$	30^{74}	$3\frac{3}{8}$	$6\frac{3}{4}$
22	96	2	1	30^{72}	$3\frac{1}{4}$	$3\frac{1}{2}$
	22	2	1	7^{04}	$1\frac{1}{8}$	3
23	60	4	$1\frac{1}{2}$	28^{80}	$3\frac{5}{8}$	$5\frac{3}{8}$
	50	4	$1\frac{1}{2}$	24	3	$5\frac{3}{4}$
24	50	3	$1\frac{1}{4}$	20	$2\frac{1}{2}$	$4\frac{3}{8}$
	45	3	$1\frac{1}{4}$	18	$2\frac{3}{8}$	$4\frac{1}{2}$
25	96	$3\frac{3}{4}$	$1\frac{3}{8}$	42^{24}	$4\frac{5}{8}$	$5\frac{1}{4}$
	34	$3\frac{3}{4}$	$1\frac{3}{8}$	14^{96}	$1\frac{3}{4}$	$5\frac{1}{4}$
26	105	9	$2\frac{1}{2}$	84	$7\frac{5}{8}$	$10\frac{3}{4}$
	60	9	$2\frac{1}{2}$	48	$3\frac{3}{4}$	$11\frac{1}{4}$
27	90	$2\frac{3}{4}$	$1\frac{1}{8}$	32^{40}	$4\frac{7}{8}$	$4\frac{1}{8}$
	20	$2\frac{3}{4}$	$1\frac{1}{8}$	7^{20}	1	$3\frac{7}{8}$
28	60	3	$1\frac{1}{4}$	24	$2\frac{3}{4}$	$4\frac{1}{4}$
	53	3	$1\frac{1}{4}$	21^{20}	$2\frac{3}{8}$	$4\frac{1}{4}$
29	33	$2\frac{1}{2}$	$1\frac{1}{2}$	15^{84}	$2\frac{3}{4}$	$3\frac{7}{8}$
	26	$2\frac{1}{2}$	$1\frac{1}{2}$	12^{48}	2	$3\frac{7}{8}$
30	60	4	$1\frac{1}{2}$	28^{80}	$3\frac{3}{4}$	$5\frac{3}{8}$
	39	4	$1\frac{1}{2}$	18^{72}	$2\frac{3}{8}$	$5\frac{3}{8}$
31	44	$2\frac{3}{4}$	$1\frac{1}{8}$	15^{84}	$2\frac{1}{4}$	$3\frac{7}{8}$
	25	$2\frac{3}{4}$	$1\frac{1}{8}$	9	$1\frac{5}{16}$	4
32	60	$3\frac{1}{2}$	$1\frac{1}{4}$	24	$3\frac{1}{2}$	$4\frac{3}{8}$
	32	$3\frac{1}{2}$	$1\frac{1}{4}$	12^{80}	$1\frac{1}{8}$	$4\frac{3}{8}$

Bevel Wheels.

Pattern	No. Teeth.	Face.	Pitch.	Diameter.	Backing.	Depth of Eye.
No.	Teeth.	Inch.	Inch.	Inch.	Inch.	Inch.
33	90	3	$1\frac{1}{8}$	32^{40}	$3\frac{3}{8}$	$3\frac{7}{8}$
	25	3	$1\frac{1}{8}$	9	$\frac{3}{4}$	$4\frac{1}{8}$
34	50	$2\frac{1}{2}$	1	16	$2\frac{3}{16}$	$3\frac{1}{4}$
	30	$2\frac{1}{2}$	1	9^{60}	$1\frac{1}{8}$	$3\frac{1}{4}$
35	41	$2\frac{1}{4}$	1	13^{12}	$1\frac{11}{16}$	3
	35	$2\frac{1}{4}$	1	11^{20}	$1\frac{3}{8}$	$2\frac{7}{8}$
36	58	$4\frac{1}{2}$	$1\frac{5}{8}$	30^{16}	$2\frac{5}{8}$	$5\frac{1}{4}$
	55	$4\frac{1}{2}$	$1\frac{5}{8}$	28^{60}	$2\frac{3}{8}$	$5\frac{1}{4}$
37	80	9	$2\frac{1}{4}$	57^{60}	$5\frac{5}{8}$	$9\frac{7}{8}$
	54	9	$2\frac{1}{4}$	38^{88}	$2\frac{7}{8}$	$9\frac{7}{8}$
38	72	3	$1\frac{1}{8}$	25^{92}	3	$3\frac{3}{4}$
	32	3	$1\frac{1}{8}$	11^{52}	1	$3\frac{3}{4}$
39	63	$4\frac{1}{2}$	$1\frac{5}{8}$	32^{76}	$4\frac{1}{8}$	$6\frac{1}{2}$
	56	$4\frac{1}{2}$	$1\frac{5}{8}$	29^{12}	$3\frac{5}{8}$	$6\frac{1}{2}$
40	62	6	$1\frac{3}{4}$	34^{72}	$4\frac{1}{8}$	8
	60	6	$1\frac{3}{4}$	33^{60}	4	8
41	66	$3\frac{3}{4}$	$1\frac{3}{8}$	29^{64}	$4\frac{3}{8}$	$5\frac{1}{4}$
	26	$3\frac{3}{4}$	$1\frac{3}{8}$	11^{44}	$1\frac{1}{4}$	$4\frac{7}{8}$
42	66	$4\frac{1}{2}$	$1\frac{5}{8}$	34^{32}	$4\frac{1}{2}$	$6\frac{1}{4}$
	26	$4\frac{1}{2}$	$1\frac{5}{8}$	13^{52}	$1\frac{3}{8}$	$5\frac{3}{8}$
43	46	$2\frac{1}{4}$	1	14^{72}	$2\frac{3}{8}$	$3\frac{3}{8}$
	32	$2\frac{1}{4}$	1	10^{24}	$1\frac{1}{2}$	$3\frac{1}{4}$
44	66	3	$1\frac{1}{8}$	23^{76}	$3\frac{1}{2}$	$3\frac{5}{8}$
	26	3	$1\frac{1}{8}$	9^{36}	1	4
45	90	$3\frac{1}{2}$	$1\frac{1}{4}$	36	$4\frac{5}{8}$	5
	25	$3\frac{1}{2}$	$1\frac{1}{4}$	10	$\frac{3}{4}$	$4\frac{1}{4}$
46	80	3	$1\frac{1}{8}$	28^{80}	$3\frac{1}{2}$	4
	27	3	$1\frac{1}{8}$	9^{72}	1	4
47	34	$2\frac{1}{2}$	$1\frac{1}{2}$	16	$2\frac{3}{8}$	$3\frac{7}{16}$
	25	$2\frac{1}{2}$	$1\frac{1}{2}$	12	$1\frac{5}{8}$	$3\frac{3}{8}$
48	38	2	1	12^{16}	$2\frac{1}{4}$	$2\frac{7}{8}$
	19	2	1	6^{08}	$1\frac{5}{16}$	$2\frac{7}{8}$

Bevel Wheels.						
Pattern.	No. Teeth.	Face.	Pitch.	Diameter.	Backing.	Depth of Eye
No.	Teeth.	Inch.	Inch.	Inch.	Inch.	Inch.
49	40	3	$1\frac{1}{8}$	14^{40}	$2\frac{3}{16}$	$3\frac{1}{16}$
*A	34	3	$1\frac{1}{8}$	12^{24}	$1\frac{3}{4}$	$3\frac{1}{16}$
	40	$2\frac{1}{4}$	$1\frac{1}{4}$	16	$2\frac{5}{8}$	$3\frac{1}{4}$
	20	$2\frac{1}{4}$	$1\frac{1}{4}$	8	$1\frac{3}{8}$	$3\frac{1}{8}$
	45	$2\frac{1}{2}$	1	14^{40}	$1\frac{3}{4}$	$3\frac{3}{8}$
†B	38	$2\frac{1}{2}$	1	12^{16}	$1\frac{1}{2}$	$3\frac{3}{8}$
	90	$4\frac{1}{2}$	$1\frac{1}{2}$	43^{20}	$5\frac{3}{8}$	$5\frac{7}{8}$
50	25	$4\frac{1}{2}$	$1\frac{1}{2}$	12	$1\frac{5}{16}$	$5\frac{7}{16}$
	60	$2\frac{1}{2}$	$1\frac{1}{8}$	21^{60}	$3\frac{5}{16}$	$3\frac{1}{2}$
51	15	$2\frac{1}{2}$	$1\frac{1}{8}$	5^{40}	$1\frac{1}{16}$	$3\frac{3}{8}$
	93	8	2	59^{52}	$7\frac{5}{8}$	$9\frac{1}{2}$
52	34	8	2	21^{76}	$1\frac{1}{2}$	9
	100	10	$2\frac{1}{2}$	80	$8\frac{7}{8}$	$11\frac{5}{8}$
53	43	10	$2\frac{1}{2}$	34^{40}	$2\frac{3}{16}$	$11\frac{1}{8}$
	50	$2\frac{1}{2}$	1	16	$1\frac{13}{16}$	$3\frac{5}{8}$
54	45	$2\frac{1}{2}$	1	14^{40}	$1\frac{9}{16}$	$3\frac{3}{8}$
	75	8	2	48	$5\frac{1}{2}$	$9\frac{3}{8}$
55	50	8	2	32	$2\frac{3}{4}$	$9\frac{1}{8}$
	50	3	$1\frac{1}{8}$	18	$2\frac{3}{16}$	$3\frac{7}{8}$
56	40	3	$1\frac{1}{8}$	14^{40}	$1\frac{5}{8}$	$3\frac{7}{8}$
	43	$3\frac{1}{2}$	1	13^{76}	$3\frac{5}{16}$	$4\frac{5}{16}$
57	15	$3\frac{1}{2}$	1	4^{80}	$1\frac{3}{16}$	4
	57	5	$1\frac{3}{4}$	31^{92}	$3\frac{11}{16}$	$6\frac{1}{8}$
58	43	5	$1\frac{3}{4}$	24^{08}	$2\frac{5}{16}$	6
	53	$2\frac{3}{4}$	1	16^{96}	2	$3\frac{5}{8}$
59	42	$2\frac{3}{4}$	1	13^{44}	$1\frac{1}{2}$	$3\frac{5}{8}$
	50	$3\frac{1}{2}$	$1\frac{1}{4}$	20	3	$4\frac{1}{2}$
60	30	$3\frac{1}{2}$	$1\frac{1}{4}$	12	$1\frac{3}{8}$	$4\frac{3}{8}$
	88	9	$2\frac{1}{4}$	63^{36}	$7\frac{11}{16}$	$10\frac{3}{8}$
61	40	9	$2\frac{1}{4}$	28^{80}	$2\frac{1}{8}$	$9\frac{7}{8}$

* Center lines at an angle of 4 inches in eleven feet.

† " " " " five-sixteenths of an inch to the foot.

Bevel Wheels.

Pattern.	No. Teeth.	Face.	Pitch.	Diameter.	Backing.	Depth of Eye
No.	Teeth.	Inch.	Inch.	Inch.	Inch.	Inch.
62 }	80	$3\frac{1}{2}$	$1\frac{1}{4}$	32	$4\frac{1}{4}$	$4\frac{7}{8}$
	27	$3\frac{1}{2}$	$1\frac{1}{4}$	10^{80}	$1\frac{5}{6}$	$4\frac{3}{8}$
63 }	68	9	$2\frac{1}{4}$	48^{96}	$7\frac{3}{8}$	$10\frac{5}{8}$
	33	9	$2\frac{1}{4}$	23^{76}	2	$10\frac{1}{8}$
64 }	45	$2\frac{1}{2}$	1	14^{40}	$1\frac{3}{4}$	$3\frac{3}{8}$
	38	$2\frac{1}{2}$	1	12^{16}	$1\frac{1}{2}$	$3\frac{3}{8}$
65 }	45	$2\frac{1}{2}$	1	14^{40}	$1\frac{1}{6}$	$3\frac{1}{4}$
	42	$2\frac{1}{2}$	1	13^{44}	$1\frac{1}{2}$	$3\frac{1}{4}$
66 }	90	$2\frac{1}{2}$	1	28^{80}	$3\frac{1}{4}$	4
	25	$2\frac{1}{2}$	1	8	$\frac{7}{8}$	$3\frac{3}{8}$
67 }	57	$2\frac{1}{2}$	1	18^{24}	$2\frac{1}{2}$	$3\frac{1}{4}$
	28	$2\frac{1}{2}$	1	8^{96}	1	$3\frac{1}{4}$
68 }	84	$4\frac{1}{2}$	$1\frac{3}{4}$	47^{04}	$4\frac{3}{4}$	$5\frac{1}{4}$
	27	$4\frac{1}{2}$	$1\frac{3}{4}$	15^{12}	1	$5\frac{1}{4}$
69 }	50	$1\frac{3}{4}$	1	16	2	2
	11	$1\frac{3}{4}$	1	3^{52}	$\frac{1}{4}$	$1\frac{7}{8}$
70 }	66	$2\frac{1}{2}$	1	21^{12}	$2\frac{5}{8}$	$3\frac{1}{4}$
	26	$2\frac{1}{2}$	1	8^{32}	$\frac{7}{8}$	$3\frac{1}{4}$
71 }	74	$4\frac{1}{2}$	$1\frac{1}{2}$	35^{52}	$4\frac{5}{8}$	$5\frac{1}{2}$
	27	$4\frac{1}{2}$	$1\frac{1}{2}$	12^{96}	1	$5\frac{1}{4}$
72 }	74	$3\frac{1}{2}$	$1\frac{1}{4}$	29^{60}	$3\frac{3}{4}$	$4\frac{1}{2}$
	27	$3\frac{1}{2}$	$1\frac{1}{4}$	10^{80}	$\frac{7}{8}$	$4\frac{1}{4}$
73 }	74	3	$1\frac{1}{8}$	26^{64}	$3\frac{3}{8}$	4
	27	3	$1\frac{1}{8}$	9^{72}	$\frac{7}{8}$	$3\frac{3}{4}$
74 }	80	$2\frac{1}{2}$	1	25^{60}	$3\frac{7}{8}$	$3\frac{1}{2}$
	27	$2\frac{1}{2}$	1	8^{64}	$\frac{3}{4}$	$3\frac{1}{4}$
75 }	45	3	$1\frac{1}{8}$	16^{20}	$2\frac{1}{8}$	4
	42	3	$1\frac{1}{8}$	15^{12}	2	4

Bevel Wheels.

Pattern.	No. Teeth.	Face.	Pitch.	Diameter.	Backing.	Depth of Eye
No.	Teeth.	Inch.	Inch.	Inch.	Inch.	Inch.
76 } *C }	51 42 50 38	3 3 $2\frac{1}{2}$ $2\frac{1}{2}$	$1\frac{1}{8}$ $1\frac{1}{8}$ 1 1	$18^3 6$ $15^1 2$ 16 $12^1 6$	$2\frac{1}{8}$ $1\frac{5}{8}$ $1\frac{3}{4}$ $1\frac{1}{2}$	$3\frac{3}{4}$ $3\frac{3}{4}$ 3 $3\frac{3}{8}$
77 }	50 38	$2\frac{1}{2}$ $2\frac{1}{2}$	1 1	16 $12^1 6$	$1\frac{3}{4}$ $1\frac{1}{2}$	3 $3\frac{3}{8}$
78 }	54 36	$2\frac{1}{2}$ $2\frac{1}{2}$	1 1	$17^2 8$ $11^5 2$	$2\frac{1}{8}$ $1\frac{3}{16}$	$3\frac{1}{4}$ $3\frac{1}{4}$
79 }	50 25	$2\frac{1}{2}$ $2\frac{1}{2}$	1 1	16 8	$2\frac{3}{8}$ $1\frac{5}{16}$	$3\frac{1}{4}$ $3\frac{1}{4}$
80 }	63 20	$3\frac{1}{2}$ $3\frac{1}{2}$	$1\frac{1}{2}$ $1\frac{1}{2}$	$30^2 4$ $9^6 0$	4 $\frac{7}{8}$	$4\frac{1}{4}$ $4\frac{1}{4}$
81 }	50 18	2 2	$\frac{7}{8}$ $\frac{7}{8}$	14 $5^0 4$	3 $1\frac{1}{16}$	$3\frac{1}{2}$ $2\frac{3}{4}$
82 }	45 19	$2\frac{1}{4}$ $2\frac{1}{4}$	1 1	$14^4 0$ $6^0 8$	$2\frac{3}{8}$ $1\frac{3}{16}$	3 3
83 }	65 28	$3\frac{1}{4}$ $3\frac{1}{4}$	$1\frac{1}{8}$ $1\frac{1}{8}$	$23^4 0$ $10^0 8$	$3\frac{1}{8}$ 1	4 4
84 }	66 26	$3\frac{1}{2}$ $3\frac{1}{2}$	$1\frac{1}{4}$ $1\frac{1}{4}$	$26^4 0$ $10^4 0$	$3\frac{1}{2}$ $2\frac{5}{16}$	$4\frac{1}{4}$ $4\frac{1}{4}$
85 }	50 45	4 4	$1\frac{1}{2}$ $1\frac{1}{2}$	24 $21^6 0$	$2\frac{3}{4}$ $2\frac{3}{8}$	5 5
86 }	36 18	1 1	$\frac{3}{4}$ $\frac{3}{4}$	$8^6 4$ $4^3 2$	$\frac{5}{8}$ 1	2 $1\frac{5}{8}$
87 }	37 14	$1\frac{1}{4}$ $1\frac{1}{4}$	$\frac{3}{4}$ $\frac{3}{4}$	$8^8 8$ $3^3 6$		
88 }	50 45	3 3	$1\frac{1}{8}$ $1\frac{1}{8}$	18 $16^2 0$	2 $1\frac{11}{16}$	$3\frac{3}{4}$ $3\frac{3}{4}$
89 }	90 15	$3\frac{1}{2}$ $3\frac{1}{2}$	$1\frac{1}{4}$ $1\frac{1}{4}$	36 6	$4\frac{1}{4}$ $\frac{9}{16}$	$4\frac{1}{4}$ $4\frac{1}{4}$
90 }	96 18	$2\frac{1}{2}$ $2\frac{1}{2}$	$1\frac{1}{8}$ $1\frac{1}{8}$	$34^5 6$ $6^4 8$	$3\frac{3}{4}$ $\frac{9}{16}$	3 $3\frac{1}{4}$
91 }	63 20	$2\frac{1}{2}$ $2\frac{1}{2}$	$1\frac{1}{8}$ $1\frac{1}{8}$	$22^6 8$ $7^2 0$	$3\frac{3}{16}$ $1\frac{11}{16}$	$3\frac{1}{2}$ $3\frac{1}{4}$
92 }	50 40	$2\frac{1}{2}$ $2\frac{1}{2}$	1 1	16 $12^3 0$	$1\frac{15}{16}$ $1\frac{7}{16}$	$3\frac{1}{4}$ $3\frac{1}{4}$
93 }						
94 }	63 36	$4\frac{3}{4}$ $4\frac{3}{4}$	$1\frac{5}{8}$ $1\frac{5}{8}$	$32^7 6$ $18^7 2$	4 $1\frac{5}{8}$	$5\frac{3}{4}$ $5\frac{1}{2}$

*Centre line at an acute angle of $\frac{5}{16}$ in. to the foot.

Spur Wheels.

No. Pattern.	No. of Teeth.	Face.	Pitch.	Diameter.	Depth of Eye	Weight.
No.	Teeth.	Inch.	Inch.	Inch.	Inch.	lbs.
1	170	$1\frac{3}{4}$	$\frac{3}{4}$	40 ⁸⁰	$3\frac{1}{2}$	
2	150	$2\frac{1}{4}$	$\frac{3}{4}$	36	4	
3	150	$1\frac{3}{4}$	$\frac{3}{4}$	36	$3\frac{1}{4}$	
4	100	2	$\frac{3}{4}$	24	$3\frac{1}{8}$	
5	85	2	$\frac{3}{4}$	20 ⁴⁰	$3\frac{3}{8}$	
6	67	2	$\frac{3}{4}$	16 ⁰⁸	$3\frac{1}{8}$	
7	63	2	$\frac{3}{4}$	15 ¹²	$3\frac{3}{8}$	
8	40	2	$\frac{3}{4}$	9 ⁶⁰	$3\frac{1}{8}$	
9	30	2	$\frac{3}{4}$	7 ²⁰	4	
10	139	2	$\frac{3}{4}$	33 ³⁶	$3\frac{7}{8}$	
11	130	2	$\frac{3}{4}$	31 ²⁰	$3\frac{1}{2}$	
12	90	3	$1\frac{1}{4}$	36	$4\frac{3}{4}$	
13	31	3	$1\frac{1}{4}$	12 ⁴⁰	$3\frac{3}{4}$	
14	100	$3\frac{1}{2}$	$1\frac{3}{8}$	44	$5\frac{3}{8}$	
15	22	$3\frac{1}{2}$	$1\frac{3}{8}$	9 ⁶⁸	$4\frac{1}{2}$	
16	15	3	$1\frac{1}{2}$	7 ²⁰	$3\frac{3}{4}$	
17	50	2	$\frac{3}{4}$	12	$3\frac{1}{8}$	
18	120	2	$\frac{3}{4}$	28 ⁸⁰	$3\frac{1}{4}$	
19	160	2	$\frac{3}{4}$	38 ⁴⁰	$3\frac{3}{4}$	
20	76	2	$\frac{3}{4}$	18 ²⁴	$3\frac{1}{4}$	
21	45	3	$1\frac{1}{4}$	18	$3\frac{3}{4}$	
22	25	2	$\frac{3}{4}$	6	$2\frac{3}{4}$	
23	18	3	$1\frac{1}{4}$	7 ²⁰	$3\frac{3}{4}$	
24	17	2	$\frac{3}{4}$	4 ⁰⁸	$2\frac{3}{4}$	
25	44	$1\frac{1}{8}$	$\frac{5}{8}$	8 ⁸⁰	$1\frac{1}{8}$	
26	14	$1\frac{1}{8}$	$\frac{5}{8}$	2 ⁸⁰	$1\frac{1}{8}$	
27	13	3	$1\frac{1}{4}$	5 ²⁰	$3\frac{3}{4}$	
28	64	$2\frac{1}{2}$	$1\frac{1}{8}$	23 ⁰⁴	$3\frac{5}{8}$	
29	13	$2\frac{1}{2}$	$1\frac{1}{8}$	4 ⁶⁸	$3\frac{3}{8}$	
30	42	$2\frac{1}{4}$	1	13 ⁴⁴	$3\frac{1}{4}$	

Spur Wheels.

Pattern.	No. Teeth.	Face.	Pitch.	Diameter.	Depth of Eye.	Weight.
No.	Teeth.	Inch.	Inch.	Inch.	Inch.	Lbs.
31	30	$2\frac{1}{4}$	1	9^{60}	$3\frac{1}{4}$	
32	18	$2\frac{1}{4}$	1	5^{76}	3	
33	14	$3\frac{1}{2}$	$1\frac{3}{8}$	6^{16}	$4\frac{1}{4}$	
34	20	2	$\frac{3}{4}$	4^{80}	$2\frac{3}{4}$	
35	56	2	$\frac{3}{4}$	13^{44}	$2\frac{3}{4}$	
*36	137	2	$\frac{7}{8}$	38^{36}	$3\frac{1}{2}$	
*37	119	2	$\frac{7}{8}$	33^{32}	$3\frac{1}{2}$	
*38	103	2	$\frac{7}{8}$	28^{84}	$3\frac{1}{2}$	
*39	73	2	$\frac{7}{8}$	20^{44}	$3\frac{1}{4}$	
*40	86	2	$\frac{7}{8}$	24^{08}	$3\frac{1}{4}$	
*41	96	2	$\frac{7}{8}$	26^{88}	$3\frac{3}{8}$	
†42	38	2	$\frac{3}{4}$	9^{12}	$3\frac{1}{2}$	
†43	100	2	$\frac{3}{4}$	24	$2\frac{3}{8}$	
†44	14	2	$\frac{3}{4}$	3^{36}	$2\frac{1}{2}$	
†45	15	$2\frac{1}{2}$	1	4^{80}	$2\frac{1}{2}$	
46	25	3	$1\frac{1}{4}$	10	3	
47	44	2	$\frac{3}{4}$	10^{56}	$3\frac{1}{8}$	
*48	48	2	$\frac{7}{8}$	13^{44}	$3\frac{1}{4}$	
49	43	3	$1\frac{1}{4}$	17^{20}	$4\frac{1}{4}$	
50	76	3	$1\frac{1}{4}$	30^{40}	$4\frac{1}{2}$	
51	11	$3\frac{1}{2}$	$1\frac{3}{8}$	4^{84}	$4\frac{3}{8}$	
52	20	3	$1\frac{1}{4}$	8	$3\frac{7}{8}$	
53	84	3	$1\frac{1}{4}$	33^{60}	$4\frac{1}{8}$	
54	39	3	$1\frac{1}{4}$	15^{60}	$3\frac{3}{4}$	
*55	57	2	$\frac{7}{8}$	15^{96}	$3\frac{1}{4}$	
*56	16	2	$\frac{7}{8}$	4^{48}	$2\frac{3}{4}$	
57	13	2	$\frac{3}{4}$	3^{12}	$2\frac{3}{4}$	
58	23	2	$\frac{3}{4}$	5^{52}	$2\frac{3}{4}$	
*59	119	$2\frac{1}{2}$	$\frac{7}{8}$	33^{32}	4	
*60	103	$2\frac{1}{2}$	$\frac{7}{8}$	28^{84}	4	
61	21	$2\frac{1}{2}$	$1\frac{1}{8}$	7^{56}	$3\frac{3}{8}$	
62	18	4	2	11^{52}	$4\frac{7}{8}$	

* Long Teeth. † Long Teeth, Arms Ribbed.

Spur Wheels.

Pattern.	No. Teeth.	Face.	Pitch.	Diameter.	Depth of Eye.	Weight.
No.	Teeth.	Inch.	Inch.	Inch.	Inch.	Lbs.
63	75	$3\frac{1}{2}$	$1\frac{3}{8}$	33	$4\frac{3}{4}$	
64	47	$3\frac{1}{2}$	$1\frac{3}{8}$	20^{68}	$4\frac{1}{2}$	
65	75	4	$1\frac{1}{2}$	36	$5\frac{5}{16}$	
66	72	4	$1\frac{1}{2}$	34^{56}	$5\frac{5}{16}$	
67	52	4	$1\frac{1}{2}$	24^{96}	$5\frac{1}{8}$	
68	50	4	$1\frac{1}{2}$	24	$5\frac{1}{8}$	
69	25	4	$1\frac{1}{2}$	12	$4\frac{7}{8}$	
70	120	3	$1\frac{1}{4}$	48	$4\frac{1}{2}$	
71	14	3	$1\frac{1}{4}$	5^{60}	$3\frac{7}{8}$	
72	35	4	$1\frac{1}{2}$	16^{80}	$5\frac{1}{8}$	
73	30	4	$1\frac{1}{2}$	14^{40}	$5\frac{1}{16}$	
74	81	6	$1\frac{5}{8}$	42^{12}	$7\frac{7}{16}$	
75	42	6	$1\frac{5}{8}$	21^{84}	$7\frac{1}{4}$	
76	25	6	$1\frac{5}{8}$	13	$6\frac{1}{16}$	
77	25	2	$\frac{7}{8}$	7	$2\frac{3}{4}$	
78	28	2	$\frac{3}{4}$	6^{72}	$2\frac{3}{4}$	
*79	38	$5\frac{1}{2}$	3	36^{48}	$6\frac{3}{4}$	
80	15	4	$1\frac{1}{2}$	7^{20}	$4\frac{3}{4}$	
81	138	1	$\frac{1}{2}$	23	2	
82	92	1	$\frac{1}{2}$	$15\frac{1}{8}$	2	
83	52	3	$1\frac{1}{4}$	20^{80}	$4\frac{1}{4}$	
84	57	3	$1\frac{1}{4}$	22^{80}	$4\frac{1}{4}$	
85	35	3	$1\frac{1}{4}$	14	4	
86	50	$1\frac{1}{2}$	$\frac{3}{4}$	12	$2\frac{1}{2}$	
87	17	$1\frac{1}{2}$	$\frac{3}{4}$	4^{08}	$2\frac{1}{2}$	
88	61	$6\frac{1}{4}$	$2\frac{1}{2}$	48^{80}	7	
89	38	$6\frac{1}{4}$	$2\frac{1}{2}$	30^{40}	7	
90	17	4	$1\frac{1}{2}$	8^{16}	$5\frac{1}{4}$	
91	74	3	$1\frac{1}{4}$	29^{60}	$4\frac{3}{4}$	
92	29	1	$1\frac{1}{2}$	4^{64}	1	
93	20	1	$\frac{1}{2}$	3^{20}	1	
94	13	1	$\frac{1}{2}$	2^{08}	1	
95	26	1	$\frac{1}{2}$	4^{16}	1	

*79 Works in Concentric Segment 102 Teeth.

Spur Wheels.

Pattern.	No. Teeth.	Face.	Pitch.	Diameter.	Depth of Eye.	Weight.
No.	Teeth.	Inch.	Inch.	Inch.	Inch.	Lbs.
96	17	1	$1\frac{1}{2}$	$2\frac{7}{2}$	1	
97	23	1	$1\frac{1}{2}$	$3\frac{6}{8}$	1	
98	54	1	$1\frac{1}{2}$	$8\frac{6}{4}$	1	
†99	30	3	$1\frac{1}{4}$	12	$3\frac{1}{2}$	
*†100	66	2	$1\frac{7}{8}$	$18\frac{4}{8}$	$3\frac{1}{2}$	
*†101	33	2	$1\frac{7}{8}$	$9\frac{2}{4}$	$3\frac{1}{2}$	
†102	28	3	$1\frac{1}{4}$	$11\frac{2}{0}$	$3\frac{3}{4}$	
†103	22	3	$1\frac{1}{4}$	$8\frac{8}{0}$	$3\frac{3}{4}$	
†104	32	3	$1\frac{1}{4}$	$12\frac{8}{0}$	$3\frac{3}{4}$	
†105	38	3	$1\frac{1}{4}$	$15\frac{2}{0}$	$3\frac{3}{4}$	
106	21	4	$1\frac{1}{2}$	$10\frac{0}{8}$	$4\frac{3}{4}$	
†107	37	4	$1\frac{1}{4}$	$14\frac{8}{0}$	$4\frac{3}{4}$	
†108	43	4	$1\frac{1}{4}$	$17\frac{2}{0}$	$4\frac{3}{4}$	
†109	40	2	$1\frac{7}{8}$	$11\frac{2}{0}$	$3\frac{1}{2}$	
110	17	4	$1\frac{1}{2}$	$8\frac{1}{6}$	$4\frac{3}{4}$	
111	23	3	$1\frac{1}{4}$	$9\frac{2}{0}$	$3\frac{3}{4}$	
112	25	$2\frac{1}{2}$	$1\frac{1}{16}$	$8\frac{5}{0}$	3	
113	28	$2\frac{1}{2}$	$1\frac{1}{16}$	$9\frac{5}{2}$	3	
114	16	$2\frac{1}{2}$	$1\frac{1}{8}$	$5\frac{7}{6}$	$3\frac{1}{4}$	

* Long teeth. † Odontograph tooth made to dress both sides.

Spur Segments & Pinions.

No. Pattern.	No. Teeth	Face.	Pitch.	Diameter.	No. of Segment.	No. of Teeth in each.	Weight.
No.	Teeth.	Inch.	Inch.	Inch.			lbs.
1	264	8	2	168 ⁹⁶	22	12	
	45	8	2	28 ⁸⁰			
2	165	8	2	105 ⁶⁰	15	11	
	45	8	2	28 ⁸⁰			
3	319	8	2 $\frac{3}{8}$	242 ⁴⁴	29	11	
	45	8	2 $\frac{3}{8}$	34 ²⁰			
4	238	7	2 $\frac{1}{4}$	171 ³⁶	17	14	
	43	7	2 $\frac{1}{4}$	30 ⁹⁶			
5	494	8	2	316 ⁶⁶	26	19	
	45	8	2	28 ⁸⁰			
*6	285	6	2 $\frac{3}{8}$	216 ⁶⁰	19	15	
	45	6	2 $\frac{3}{8}$	34 ²⁰			
7	99	6	2 $\frac{3}{8}$	75 ²⁴	9	11	
	45	6	2 $\frac{3}{8}$	34 ²⁰			
8	190	5	2 $\frac{3}{8}$	144 ⁴	19	10	
	45	5	2 $\frac{3}{8}$	34 ²⁰			
9	360	8	2 $\frac{1}{4}$	259 ²⁰	30	12	
	43	8	2 $\frac{1}{4}$	30 ⁹⁶			
10	192	8	2	122 ⁸⁸	12	16	
	45	8	2	28 ⁸⁰			
11	630	8	2	403 ²⁰	42	15	
	45	8	2	28 ⁸⁰			
†12	132	1 $\frac{1}{2}$	$\frac{3}{4}$	31 ⁶⁸	4	33	
	13	1 $\frac{1}{2}$	$\frac{3}{4}$	3 ¹²			
13	165	8	2	105 ⁶⁰	15	11	
	56	8	2	35 ⁸⁴			
14	216	2 $\frac{1}{2}$	1 $\frac{1}{4}$	86 ⁴⁰	9	24	
†15	228	4	1 $\frac{1}{2}$	109 ⁴⁴	12	19	
16	696	7	2 $\frac{1}{4}$	501 ¹²	24	29	
17	360	8	2	230 ⁴⁰	20	18	

* Concentric, or Teeth inside.

† Flanges.

‡ Works in Spur Core.

Spur Segments and Pinions.							
Pattern.	No. Teeth.	Face.	Pitch.	Diameter.	No. of Segment.	No. of Teeth in each.	Weight.
No.	Teeth.	Inch.	Inch.	Inch.			Lbs.
18 {	162	2½	1	51 ⁸⁴	6	27	
	13	2½	1	4 ²⁶			
19 {	200	8	2	128	10	20	
	47	8	2	30 ⁰⁸			
20 {	360	6	2¼	259 ²⁰	30	12	
	43	6	2¼	30 ⁹⁶			
21 {	364	8	2	232 ⁹⁶	26	14	
	45	8	2	28 ⁸⁰			

Bevel Segments and Pinions.

No. Pattern.	No. Teeth.	Face.	Pitch.	Diameter.	Backing.	No. of Segment.	No. of Teeth in each.	Weight.
No.	Teeth.	Inch.	Inch.	Inch.	Inch.			Lbs.
1	168	6	2	107 ⁵²	1 $\frac{3}{4}$	12	14	
	40	6	2	25 ⁶⁰				
2	120	6	2 $\frac{1}{4}$	86 ⁴⁰		8	15	
	35	6	2 $\frac{1}{4}$	25 ²⁰				
3	225	8	2 $\frac{1}{8}$	153		15	15	
	45	8	2 $\frac{1}{8}$	30 ⁶⁰				
4	308	3 $\frac{1}{2}$	2	197 ¹²		28	11	
	11	3 $\frac{1}{2}$	2	7 ⁰⁴				
5	225	7	2	144	$\frac{3}{4}$	15	15	
	38	7	2	24 ³²				
6	144	10	2 $\frac{3}{4}$	126 ⁷²	1 $\frac{1}{8}$	12	12	
	34	10	2 $\frac{3}{4}$	29 ⁹²				

Spur Pinions and Racks.

No. Pattern.	No. of Teeth.	Face.	Pitch.	Diameter.	Length of Segments.	Weight.
No.	Teeth.	Inch.	Inch.	Inch.	Inch.	lbs.
1	36	$1\frac{1}{2}$	$\frac{3}{4}$		27	
	12	$1\frac{1}{2}$	$\frac{3}{4}$	2^{88}		
	32	$1\frac{1}{2}$	$\frac{3}{4}$		24	
* 2	33	$1\frac{3}{4}$	$\frac{7}{8}$		28^{87}	
	13	$1\frac{3}{4}$	$\frac{7}{8}$	3^{64}		
* 3	29	$1\frac{1}{2}$	$\frac{7}{8}$		25^{37}	
	17	$1\frac{1}{2}$	$\frac{7}{8}$	4^{78}		
* 4	16	2	1	5^{12}		
	36	2	1		36	
	24	$3\frac{1}{2}$	$1\frac{3}{8}$		33^{25}	
5	14	$3\frac{1}{2}$	$1\frac{3}{8}$	6^{16}	Flanges.	
	20	3	$1\frac{1}{4}$		25	
6	14	3	$1\frac{1}{4}$	5^{60}		
	11	2	$\frac{3}{4}$	2^{64}		
7	38	$1\frac{1}{2}$	$\frac{3}{4}$		$28\frac{1}{2}$	
	20	2	1	6^{40}		
* 8	36	2	1		36	
9	14	$1\frac{1}{2}$	$\frac{3}{4}$	3^{36}		
* 10	14	$1\frac{3}{4}$	1	4^{48}		

* Round Teeth.

Hand or Fly Wheels.

No. Pattern.	Diameter.	Diameter of Rim.	No. of Arms.		Weight.
No.	Inch.	Inch.	Inch.		lbs.
1	42	$2\frac{1}{2}$	4		
2	36	$1\frac{1}{2}$	4		
3	24	$1\frac{3}{4}$	6		
4	18	$1\frac{3}{8}$	6		
5	12	$1\frac{1}{4}$	4		
6	$9\frac{1}{2}$	1	4		
7	$8\frac{1}{2}$	$1\frac{1}{4}$	4		
8	23	$1\frac{1}{8}$	6		
9	7	$\frac{3}{8}$	Plate.		
10	6	$\frac{3}{4}$	4		
11	30	$1\frac{1}{2}$	4		
12	12	$1\frac{3}{8}$	4		
13	54	4	4		
14	96	5x5	6	Arms $2\frac{1}{4}$ Wrought	Iron.
15	8	1	4		
16	24	$1\frac{1}{2}$	6		
17	15	$1\frac{1}{4}$	4		

Pulley Patterns.

Pulley Patterns described fully, with the width of face, are made in two parts, with *swell face*, so that the casting can be used without turning.

Patterns described only by diameter, without the face being given, can be ordered of any desired face. The castings being *straight face* are intended to be turned.

Diameter.	Face.	Weight.	Diameter.	Face.	Weight.	Diameter.	Face.	Weight.
Inch.	Inch.	Lbs.	Inch.	Inch.	Lbs.	Inch.	Inch.	Lbs.
90	38		64			54		
90			64			54		
90			64			54		
90			64			52		
90			63			52		
84			63			52		
84			63			52		
84			63			52		
84			63			50		
84			62			50		
82			62			50		
82			62			50		
82			62			50		
82			62			48	20	
82			60			48		
78	Any.		60			48		
78			60			48		
78			60			48		
78			60			46		
78			57			46		
76			57			46		
76			57			46		
76			57			46		
76			57			45		
76			55			45		
72			55			45		
72			55			45		
72			55			45		
72			55			44		
72			54			44		
64			54			44		

Pulley Patterns.

Diameter.	Face.	Weight.	Diameter.	Face.	Weight.	Diameter.	Face.	Weight.			
Inch.	Inch.	Lbs.	Inch.	Inch.	Lbs.	Inch.	Inch.	Lbs.			
44	20½		34	Any.		30					
44			34			30					
42			34			30					
42			34			30					
42			34			30					
42			34			29					
42			34			29					
41			34			29					
41			34			29					
41			34			29					
41			34			29					
41			33			29					
40			33			29					
40			33			29					
40			33			29					
40			33			29					
40			33			28					
38			33			28					
38			33			28					
38			33			28					
38			33			28					
38			33			28					
38			33			28					
38			32			28					
38			32			28					
38			32			28					
38			32			28					
38			32			28					
38			32			28					
38			32			27					
36	10½ 9½ 8½ 7½					32	10½ 8½ 7½			27	10½ 9½ 7½
36						32				27	
36						32				27	
36						32				27	
36						32				27	
36						32				27	
36						32				27	
36				30		27					
36				30		27					
36				30		27					
36				30		27					
36				30		27					
36		30		26							

Pulley Patterns.

Diameter.	Face.	Weight.	Diameter.	Face.	Weight.	Diameter.	Face.	Weight.
Inch.	Inch.	Lbs.	Inch.	Inch.	Lbs.	Inch.	Inch.	Lbs.
26			23			19		
26	8 $\frac{1}{2}$		23			19		
26			23			19		
26	6 $\frac{1}{2}$		23			19		
26			22	5 $\frac{1}{2}$		19		
26	5 $\frac{1}{2}$		22	4 $\frac{1}{2}$		19		
26			22			19		
26			22			19		
26			22			19		
26			22			19		
26			22			19		
25			22			19		
25			22			18		
25			22			18	10 $\frac{1}{2}$	
25			22			18	9 $\frac{1}{2}$	
25			22			18	8 $\frac{1}{2}$	
25			21			18	7 $\frac{1}{2}$	
25			21			18	6 $\frac{1}{2}$	
25			21			18	6	
25			21			18	5 $\frac{1}{2}$	
25			21			18	5	
25			21			18	4 $\frac{1}{2}$	
24	10 $\frac{1}{2}$		21			18		
24	9 $\frac{1}{2}$		21			17		
24	7 $\frac{1}{2}$		21			17		
24			21			17		
24	6 $\frac{1}{2}$		21			17		
24	6		20			17		
24	5 $\frac{1}{2}$		20	10 $\frac{1}{2}$		17		
24	5		20	9 $\frac{1}{2}$		17		
24	4 $\frac{1}{2}$		20	8 $\frac{1}{2}$		17		
24			20	7 $\frac{1}{2}$		17		
24			20			17		
24			20			17		
23			20	6 $\frac{1}{2}$		17		
23			20	6		16		
23			20	5 $\frac{1}{2}$		16	8 $\frac{1}{2}$	
23			20	5		16	6 $\frac{1}{2}$	
23			20	4 $\frac{1}{2}$		16	6	
23			20	4		16	5 $\frac{1}{2}$	
23			20	3		16	5	

Pulley Patterns.

Diameter.	Face.	Weight.	Diameter.	Face.	Weight.	Diameter.	Face.	Weight.
Inch.	Inch.	Lbs.	Inch.	Inch.	Lbs.	Inch.	Inch.	Lbs.
16	$4\frac{1}{2}$		12	$8\frac{1}{2}$		9		
16			12			9		
16			12	$6\frac{1}{2}$		9	$2\frac{1}{8}$	
16			12			9	$1\frac{7}{8}$	
16			12	$5\frac{1}{2}$		$8\frac{1}{2}$	$7\frac{3}{4}$	
15	Any.		12			$8\frac{1}{2}$		
15	$8\frac{1}{2}$		12	$4\frac{1}{2}$		$8\frac{1}{2}$		
15			12			8		
15	$6\frac{1}{2}$		12	3		8		
15	$5\frac{1}{2}$		12			8		
15	$4\frac{1}{2}$		11			8		
15			11			8		
15			11	$6\frac{1}{4}$		8	$4\frac{1}{2}$	
15			11			8	4	
15			11			8	$3\frac{1}{2}$	
15			11			$7\frac{1}{2}$	7	
14			11			7	6	
14			11			7	5	
14			11			7	$4\frac{1}{2}$	
14			11			7		
14			11	$2\frac{1}{4}$		7		
14			10			7		
14			10			7		
14			10	6		7		
14			10			7		
14			10	$4\frac{1}{2}$		7		
14	$4\frac{1}{2}$		10			$6\frac{1}{2}$	$3\frac{1}{4}$	
13			10			6	6	
13			10			6	5	
13			10			6	4	
13			10			6		
13			10			6		
13			9			6		
13			9			6		
13			9	6		6		
13			9			6		
13			9			6		
13			9			6		
13	$3\frac{1}{2}$		9			6		
12			9					

Pulley Patterns.

Diameter.	Face.	Weight.	Diameter.	Face.	Weight.	Diameter.	Face.	Weight.
Inch.	Inch.	Lbs.	Inch.	Inch.	Lbs.	Inch.	Inch.	Lbs.
5½	5½							
5½								
5½								
5	5							
5	4							
5								
5								
5								
5								
5	2¼							
4½								
4½	5½							
4½								
4								
4								
4								
4								
4								
4								
4								
4								
4	4½							
4								

Cast Iron Conveyors.

No. Pattern.	Diameter.	
No.	Inch.	
1	12	Right hand like an Auger,
2	12	Left " contrary
3	9	Right " like an Auger,
4	9	Left " contrary,
5	6	Right " like an Auger,
6	6	Left " contrary.
		Used for conveying Grain, and in Tanneries for conveying Bark, &c. Give length over all.
1 {	48	Rope Wheel, 18 prongs.
2 {	24	Check Wheel, $2\frac{3}{4}$ face.
1 {	10	Barrel Flange.
2 {	12	" "
1 {	24	Concave Friction Pulley.
	24	Convex " "
1 {	18	Convex Friction Pulley.
2 {	24	Concave " "

Cast Iron Conveyor Spirals.

Pattern.	Outside Diam.	Diam. of Shaft.	Pitch of Screw.	Right Hand means like an Auger.
A	12	6	9	Right and Left.
B	$11\frac{1}{2}$	6	9	" " "
C	10	5	8	" " "
D	9	4	7	" " "
E	11	$5\frac{1}{2}$	9	" " "
F	14	7	9	" " "
G	14	7	12	" " "

Weight of Round Rolled Iron.

From $\frac{1}{16}$ Inch to 10 Inches Diameter.

Diameter.	Weight.	Diameter.	Weight.	Diameter.	Weight.
Inch.	Lbs.	Inch.	Lbs.	Inch.	Lbs.
$\frac{1}{16}$	.01	8	170.		
$\frac{1}{8}$	.041	$\frac{1}{4}$	180.7		
$\frac{1}{4}$	.165	$\frac{1}{2}$	191.8		
$\frac{1}{2}$	.663	$\frac{3}{4}$	203.26		
$\frac{3}{4}$	1.492	9	215.05		
1	2.654	$\frac{1}{4}$	227.18		
$\frac{1}{4}$	4.147	$\frac{1}{2}$	239.6		
$\frac{1}{2}$	5.975	$\frac{3}{4}$	252.38		
$\frac{3}{4}$	8.130	10	265.5		
2	10.616				
$\frac{1}{4}$	13.45				
$\frac{1}{2}$	16.588				
$\frac{3}{4}$	20.076				
3	23.888				
$\frac{1}{4}$	28.04				
$\frac{1}{2}$	32.52				
$\frac{3}{4}$	37.333				
4	42.464				
$\frac{1}{4}$	48.				
$\frac{1}{2}$	53.76				
$\frac{3}{4}$	59.1				
5	66.35				
$\frac{1}{4}$	73.172				
$\frac{1}{2}$	80.304				
$\frac{3}{4}$	87.777				
6	95.56				
$\frac{1}{4}$	103.705				
$\frac{1}{2}$	112.2				
$\frac{3}{4}$	121.				
7	130.05				
$\frac{1}{4}$	139.6				
$\frac{1}{2}$	149.33				
$\frac{3}{4}$	159.46				

This page blank in original.

This page blank in original.